

Ninth Semi-Annual Coal Stripping Number

# COAL MINING

SEPTEMBER, 1952

published by Modern Mining Publishing Co.  
4575 COUNTRY CLUB DRIVE • PITTSBURGH 27, PA.

VOLUME 29, No. 9

"Handy" on  
every job!



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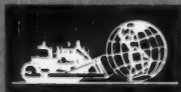
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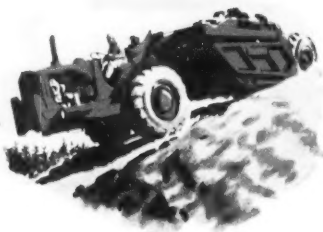
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Miners have learned to count on Cummins Diesels for dependable power day in, day out. What's behind this consistent reliability? One good reason is the fact that every Cummins Diesel is actually built *twice*. After initial assembly, and run-in testing, every engine is disassembled, inspected, then reassembled and tested again.

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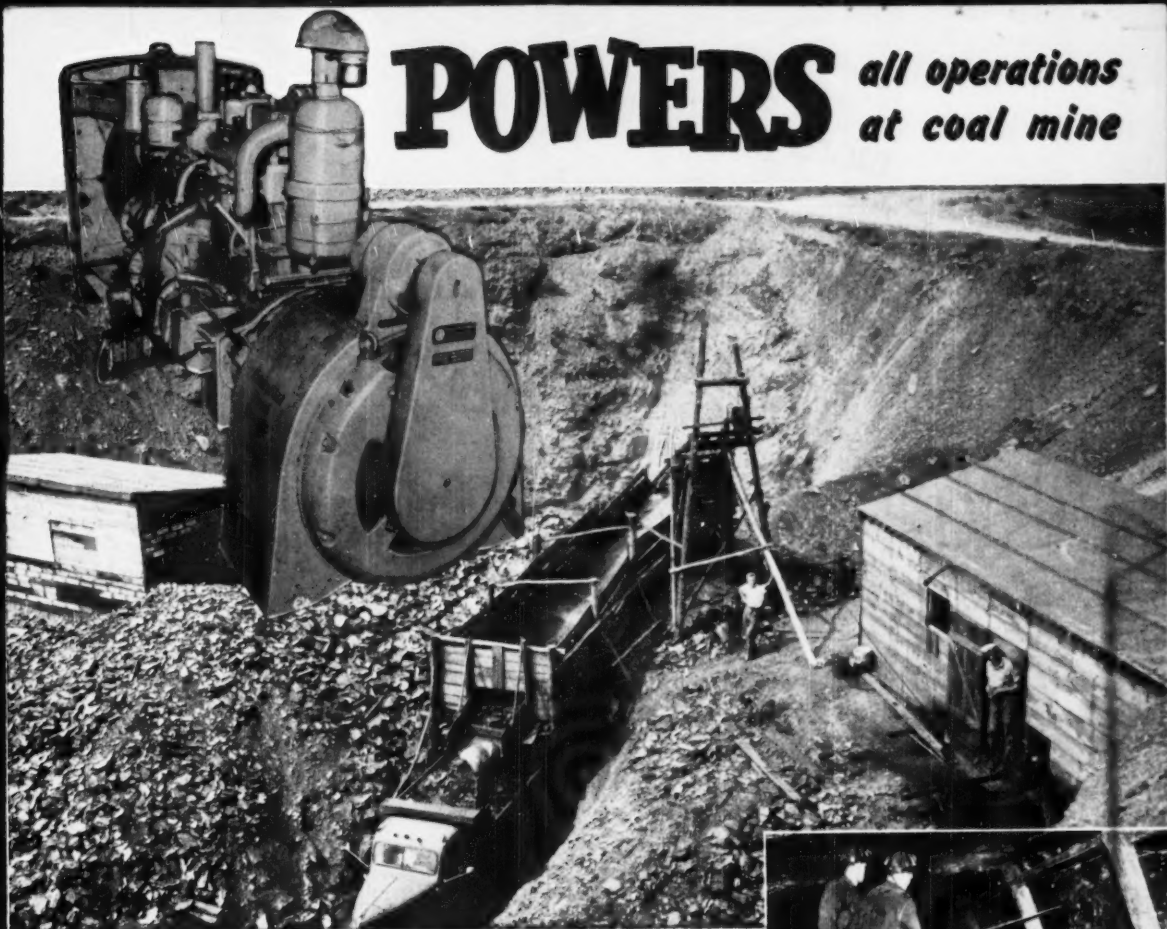
**Leaders in lightweight, high-speed diesel power!**



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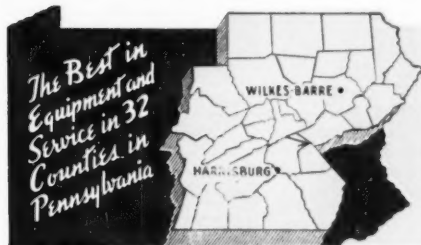
PHILADELPHIA, Cummins Diesel Engines, Inc.: 909-13 North 22nd Street, Philadelphia 3, Pennsylvania, Telephone: Rittenhouse 6-4160.  
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# POWERS *all operations at coal mine*



The B & B & S and M Coal Co., Pottsville, Pa. uses this "Caterpillar" D8800 Diesel Electric Set in their mining operations near Minersville. It is the only power used in their operations.

You can save money with a "Caterpillar" Self Regulating Electric Set. The first cost is low . . . no complicated controls to buy. Low operating and maintenance cost . . . the self regulating generator requires a minimum of attention; the engine needs only periodic lubrication and an occasional check. "Caterpillar" Diesels (10 sizes) offer savings as high as 16% over other Diesels . . . more than 50% over gasoline engines in fuel costs alone. We have the answers to your power problems . . . call us today.



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more production

# You get more for your money

## IN A BECKWITH-ENGINEERED

# "Caterpillar" Diesel installation!

more profits

• With a Beckwith Machinery Co. "Cat" Diesel Engine installation, you get many extras . . . many advantages that no other power source can give you!

You get an engine that, for 21 years, has never failed to lower operating costs wherever it works . . . an engine that users swear by, not at, for long years of trouble-free service . . . an engine that sticks to the job in any weather and meets every load with ample power.

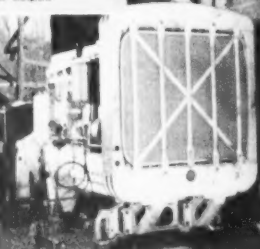
You get expert engineering assistance by Beckwith Machinery Co.'s staff of trained engine men — men who can

tell the exact engine to do your job . . . can install it properly and economically.

You get the backing of Beckwith's modern repair and parts service—service that's always ready to go . . . always knows how to get and keep your "Cat" Engines in top profit-producing shape.

If your power is growing old or your production slipping, call Beckwith for an estimate on a "Cat" Diesel Engine installation. There's no obligation!

A D13000 Electric Set furnishes power for operation of the Beechnut Coal Co. mine near Windber, Pa., range up to 314 KW output.



A ditcher, owned by George Shushereba, Turtle Creek, Pa., is powered by a "Cat" D46000 veteran of thousands of hours. 75,000 to 90,000 hours are common with "Cat" Diesels.



A wide selection of hoses, clutches, cooling systems and equipment fits "Cat" Diesels for any power need. Here, a D315, powers a pump on R. C. Murphy & Co. operations near Huey.







Shovels, cranes and draglines show a remarkable ability to produce more and steadily with "Cat" power. Old machines can be repowered or new machines equipped with "Cat" Diesels. This stripping shovel of Mays Coal Co., Clanton, Pa., is powered by the 400 HP "Caterpillar" D386 Engine shown.

### What are your power problems?

A complete line of sizes and equipment enables us to profitably answer any problem you may have. May we be of service?

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# "CONSOLIDATION COAL"

## ...with 2 rubber-tired Tournadozers

Consolidation Coal Company, (Ky.), a division of Pittsburgh Consolidation Coal Company, operates 4 mines and 2 preparation plants within a 20-mile radius of their offices at Jenkins, Kentucky. One of their 2 rubber-tired C Tournadozers handles all clean-up work at their "Beefhide" spread . . . the second "C" is on standby duty to handle emergency jobs at *all four* mines and the Jenkins Preparation Plant. This rubber-tired unit drives to the scattered job locations under its own power . . . travels over paved highways, limestone and red-dog surfaced mine roads, across tracks, up and down 20% grades at speeds up to 19 m.p.h. It is ready to go *anywhere* at a moment's notice. No blocking, loading or unloading delays at any time! With high speeds on rubber, it puts spare time to work . . . drains refuse

areas . . . strips overburden . . . hauls equipment on low-bed trailers . . . handles many other odd jobs.

### Saves 1" to 2" of coal on clean-up work

On clean-up assignments, Tournadozer's low-pressure tires reduce coal waste . . . don't dig coal into the ground or grind it into unrecoverable fines. At the "Beefhide" mine, for example, Consolidation's Tournadozer saves an estimated 1" to 2" of coal on its continuous cleaning operation.

Mobile Tournadozer gives "Consolidation" important *mechanical* advantages, too! 186 h.p. engine and 4-wheel drive put plenty of power behind the rugged 21½-yard blade. Instant-shift selection of 4 forward speeds saves vital momentum . . . lets operator drift loads in higher gears. Reverse speeds to 8 m.p.h. cut non-productive time on return half of cycle for more passes per hour. Big 21.00 x 25 low-pressure tires give plenty of sure-footed traction in soft material. Powerful 4-wheel, disc-type air brakes assure fast, safe control at all times.

Your LeTourneau Distributor will be glad to show you the Tournadozer in action, so you can judge these advantages for yourself. Call him next time you're considering dozers.

Tournadozer—Trademark Reg. U. S. Pat. Off. D-32-CM



## FURNIVAL MACHINERY CO.

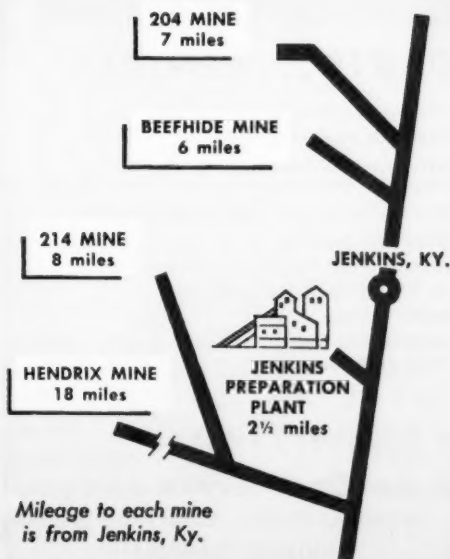
Lancaster Avenue at 54th St., PHILADELPHIA 31, PA.  
5105 Paxton St. HARRISBURG, PA.  
Water St., NEW PHILADELPHIA, PA. (Pottsville Region)

# SERVICES 4 MINES...



At the Hendrix mine slate dump, Tournadozer pushes its load of truck-dumped slate 75' in 2nd gear (3.7 m.p.h.) . . . returns to dumping point in high reverse (18 m.p.h.).

Tournadozer works on loose spoil banks or hard-packed coal seams without damaging coal surface . . . completes dozing cycles in  $\frac{1}{2}$  to  $\frac{1}{3}$  the time required by crawler-tractors.



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**Call ATLAS for ACTION  
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**ATLAS EQUIPMENT CORPORATION**

**635 RIDGE AVENUE, N. S., PITTSBURGH, PA.**



# COAL MINING

Vol. XXIX September, 1952 No. 9

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Published Monthly By

**MODERN MINING PUBLISHING COMPANY**

Publication Office—1118 Chestnut St., Erie, Pa.

Editorial Offices—4575 Country Club Drive,  
Pittsburgh, Pa., Phone PL 1-9411.

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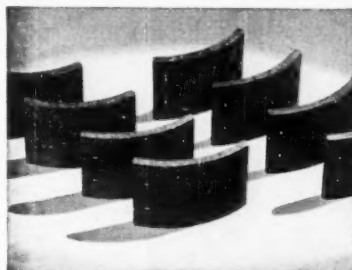
Lubrication Engineering follows an established, definite pattern of studying the Machine and recommending a lubricant to meet the situation.

Let our engineer discuss with you the NEW DEVELOPMENT IN HYDRAULIC lubrication.

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Our Stock is comprised of all types and all styles of Friction Materials, and is COMPLETE. We can furnish rigid or flexible for your earth moving equipment.

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# MCCARTHY NEW COAL RECOVERY DRILL

36-INCH DIAMETER AUGERS,  
24 FEET LONG

## BIG PROFITS

### *Small Investment—Low Overhead . . .*

• You trade rich coal deposits in unmined, abandoned, high-wall strip mines for money in the bank when you put the new McCarthy auger machine to work.

You gain many thousands of tons of coal in the course of a year because the McCarthy machine is designed for quick, easy transportation from one hole to the next—and no bulldozer is required to move it. The new McCarthy auger machine is self-propelling.

With an output of about 40 tons an hour, a three-man crew, low maintenance and low amortization costs from smaller initial investment, the profit per ton is top dollar.

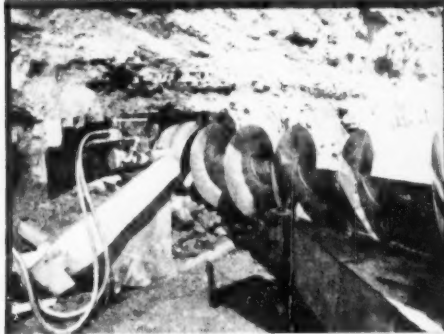


### *Field test near Cady, Ohio*

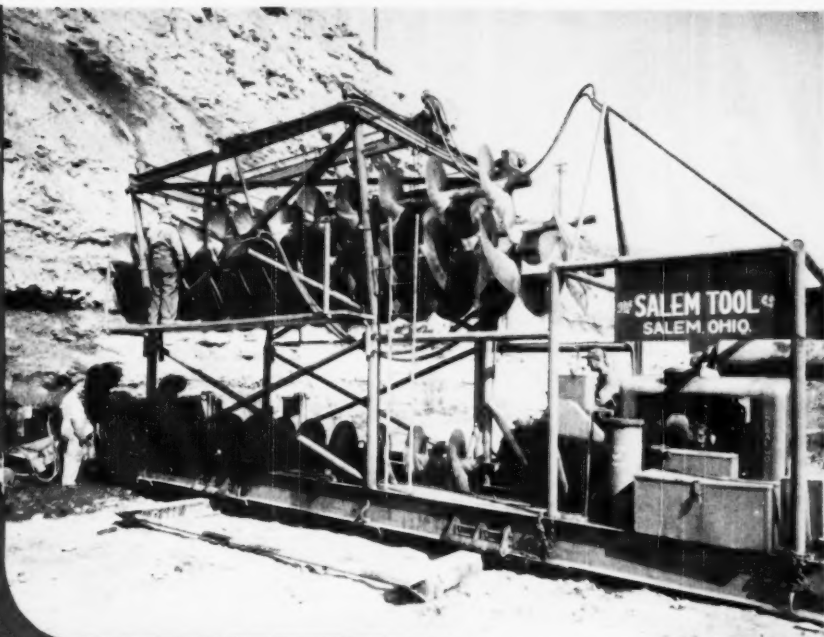
• Conveyor extension under auger cleanly picks up augered coal, and boosts it to 35-foot truck loading conveyor. For ease in portability of all equipment from one strip mine to the next, conveyors are detached from auger machines.

### *Clean pickup by conveyor*

• Mr. McCarthy, Engineering Field Representative, states: "In spite of a 2-inch hard parting about mid-way of the seam, cutting speeds averaged up to 11 feet per minute."



**Heavy  
Rugged  
Powerful**



• New McCarthy coal auger, with three-man crew, auger produces 250 to 300 tons per day. Drills 38-inch holes; 6½-inch carbide pilot head, tungsten-carbide barrel bits produce large run-of-mine coal.

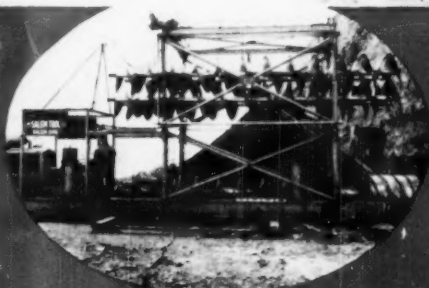
#### DESIGNED WITH YOUR PROBLEMS IN MIND

Time lost in transportation . . . and on the job inflates overhead costs and skims cream from profits. As well as high output. The Salem Tool Company has built rapid maneuverability into the design of the new McCarthy drill. The entire auger carriage assembly is easily unbolted and disassembled into sections convenient to handle. Conveyors are moved by the drilling machine as it advances to successive holes. For highway travel conveyors are disconnected and the machine lifts itself to a height of 3 feet on its hydraulic jacks to allow truck tractor bed to roll under. Short 32-foot length and 8-foot width permit convenient and allowable highway movement.

In the strip mine, drilling capacity and profit per shift are high. A three-man crew maintains continuous drilling up to 170 feet (depending on number of augers used and horse power of engine). For high veins, double overlapping holes are drilled to get maximum recovery.

Finger-tip controls replace all painstaking manual labor. Augers are moved into drilling readiness in a few seconds. At the Cadiz mine initial drilling of holes to a depth of 120', retracting augers and moving itself to next hole averaged an hour and four minutes.

Rugged construction and sufficient weight brace the new McCarthy machine for the toughest drilling conditions. You can depend on McCarthy for peak performance that nets you BIG PROFITS.



#### SPECIFICATIONS OF MODEL 12-36-24 RECOVERY DRILL

**SIZE**—32' long, 8' wide, 17' high. When crane frame and auger rack superstructure are removed, height is 13' for underpass clearance.

**GROSS WEIGHT**—Approximately 20 tons without conveyor and auger equipment.

**ENGINE**—Diesel, gasoline or electric motor.

Contact Salem Tool today for information and further specifications. At your request the Salem Tool representative will call at a time convenient to you.



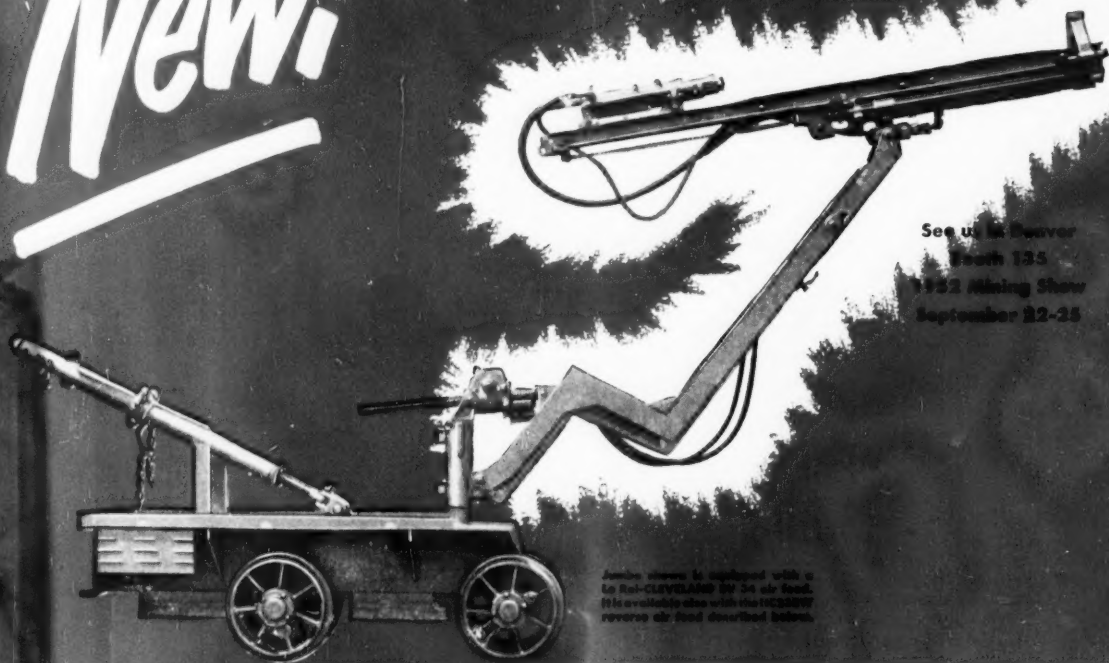
**THE SALEM  
TOOL CO.**

103 S. ELLSWORTH AVE. - SALEM, OHIO, U. S. A.

Salem Tool manufactures 3" to 54"-diameter augers for blast holes or coal recovery.

# New!

# Speeds up



See us at Hoover  
Booth 135  
1952 Mining Show  
September 22-25

Junior shown is equipped with a  
Le Roi-CLEVELAND 30 3/4 air feed.  
It is available also with the HC23RW  
reverse air feed described below.

## Miners like Le Roi-CLEVELAND HC23RW Reverse Air Feed Drifters

### Management does, too

**Faster Steel Changes!** No swing or dump nuts to loosen and reset. Your miners simply swing drifter on feed cylinder and change steels. It's not only easy — it lets them drill out the round faster.

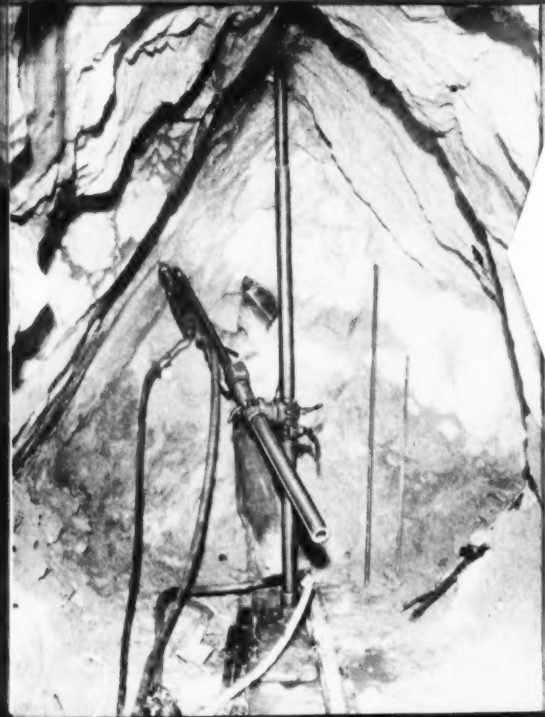
**No Stuck Steels!** Positive air feed keeps drills working at peak efficiency, avoids stuck steels.

**Higher Drilling Speeds!** Positive air feed plus proper force of blow and strong rotation give faster drilling speeds with both steel and tungsten carbide bits. You get longer bit life, too, and drill more footage.

**Low Upkeep Cost!** No feed screws or feed-screw nuts to wear. No complicated power-feed mechanism to give trouble.

**Easy to Operate!** Built to lighten the load on your miners. Feed controls conveniently located. Reverse air feed withdraws steel from hole quickly.

**Faster Set-ups!** The combination of Le Roi-CLEVELAND Air Feed Drifters and air columns gives you a unit that can be set up easily and quickly. And you can get the air column in any height you want.





# drilling cycles

## Le Roi-CLEVELAND *self-leveling* Mine Jumbo with four-foot steel-change Air Feed Drifter

***Saves time drilling lifters!  
Lets your miners drill the right  
round for any ground!***

You couldn't ask for more from a mine jumbo than the performance you get from this new Le Roi-CLEVELAND. It's got plenty of stuff. And the payoff for you is faster cycles, greater tonnage per man-shift, lower costs! Here's why:

**Self-leveling, air-motor-powered arm**, lets miners spot and space holes quickly and easily, for the most efficient fragmentation. They don't have to loosen a bolt or tilt a boom, to complete the drilling cycle.

**Exclusive rigid screw and gearing mechanism** keeps the heading straight, cuts down overbreak and underbreak. Keeps the drifters in line, prevents the steel from binding, reduces chuck wear.

**Offset arm** provides plenty of clearance to drill lifters — without having to take time out to swing the drill under the arm.

You can get this Le Roi-CLEVELAND Self-Leveling Mine Jumbo in either single-arm or double-arm construction. Write for further information and see for yourself how either model can help you get more done every shift.



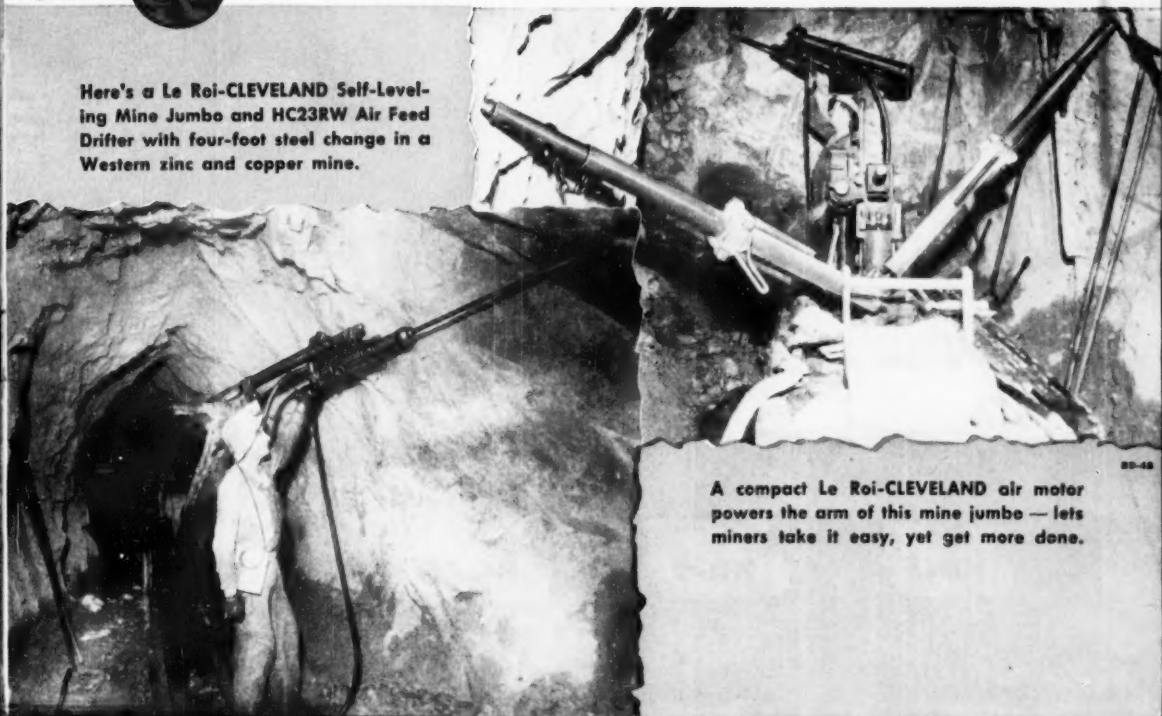
### LE ROI COMPANY

CLEVELAND ROCK DRILL DIVISION

12500 Berea Road, Cleveland 11, Ohio

Plants: Milwaukee, Cleveland and Greenwich, O.

Here's a Le Roi-CLEVELAND Self-Leveling Mine Jumbo and HC23RW Air Feed Drifter with four-foot steel change in a Western zinc and copper mine.



A compact Le Roi-CLEVELAND air motor powers the arm of this mine jumbo — lets miners take it easy, yet get more done.

85-48

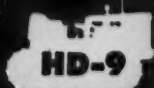
built to *GET MORE DONE*



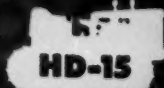
*THE NEWEST, FINEST LINE ON EARTH!*



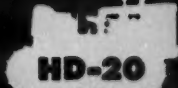
40 drawbar hp.  
11,250 lb.



72 drawbar hp.  
18,800 lb.



109 drawbar hp.  
27,850 lb.



Hydraulic Torque  
Converter Drive  
175 net engine hp.  
41,000 lb.

# • built to **TAKE IT LONGER**

## *Built for Better Mining-* **ALLIS-CHALMERS HD-9, HD-15**

### **Unequalled Lugability**

The HD-9 and HD-15 build up greater drawbar pull faster . . . hold it longer than ever thought possible in gear transmission tractors.

For example, when tough going has pulled travel speed down 40 percent, these tractors will have increased their drawbar pull almost 20 percent over rated pull. They will lug down almost 45 percent from rated travel speed before drawbar pull even starts to fall off.

To take full advantage of this important GM 2-cycle diesel engine characteristic, the HD-9 and HD-15 have longer truck frames, lower idlers and sprockets. That means more track on the ground . . . better stability . . . sure-footed traction . . . unequalled *lugability*.

### **Extra Long Life**

Here are a few of the many reasons why these newest, finest tractors are *built to take it*.

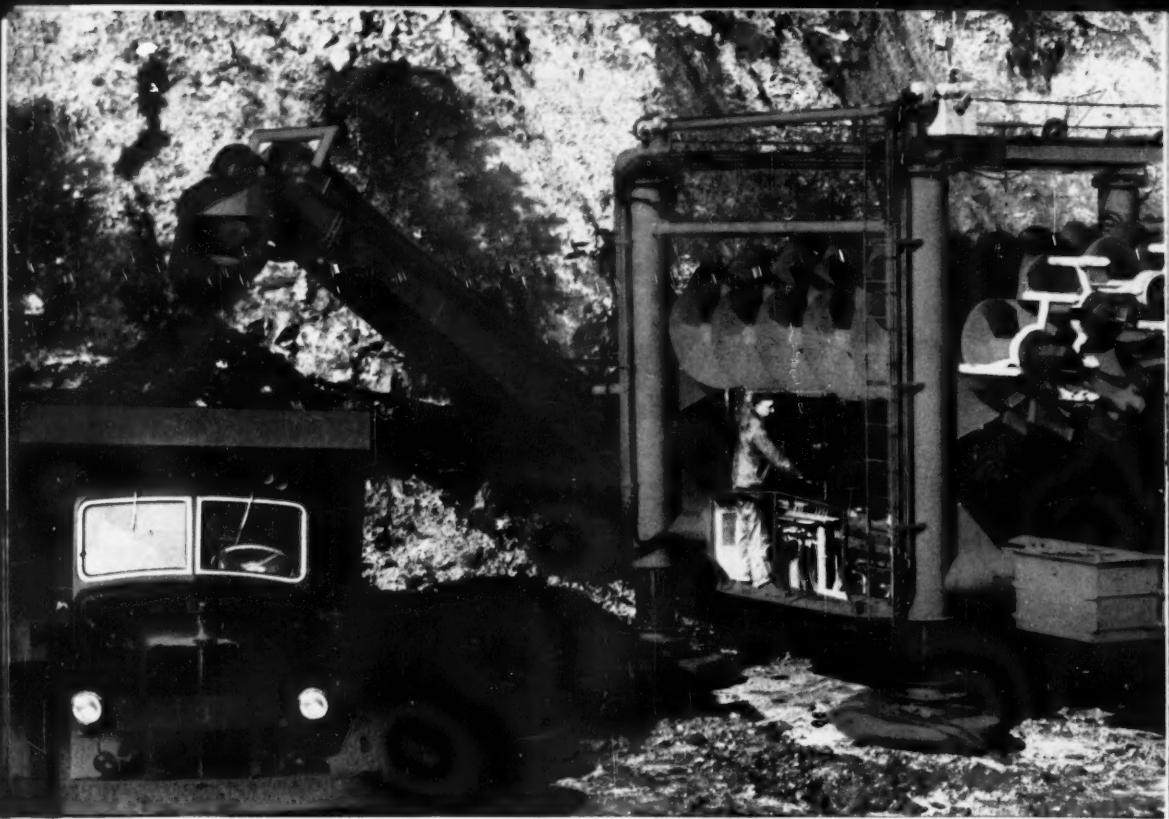
- ▶ All-Steel Welded Construction
- ▶ More Power with Bigger Engines — Longer Engine Life
- ▶ More Weight, Greater Strength
- ▶ Extra Heavy Main Frames — No Extra Reinforcement Needed for Front-Mounted Equipment
- ▶ Long-Lasting, Large Diameter Clutches
- ▶ Double Reduction, Straddle-Mounted Final Drive Gears with Live Sprocket Shafts and Caged Bearings
- ▶ Positive Operating Track Release — Works in Oil
- ▶ All New, Specially Designed Track Assembly
- ▶ Positive-Seal Truck Wheels, Support Rollers and Idlers — Mounted on Tapered Roller Bearings, 1,000-Hour Lubrication!

Your Allis-Chalmers dealer will be glad to explain all of these advantages. See him or phone him now.

**DESIGNED FOR YOUR JOB • BUILT TO "TAKE IT" • EASY TO OPERATE • EASY TO SERVICE**

# **ALLIS-CHALMERS**

**TRACTOR DIVISION • MILWAUKEE 1, U. S. A.**



# COMPTON AUGER

## *Improves product and cuts cost of* **STRIP MINE OPERATIONS**

The Compton Auger introduces an entirely new and unique method of recovering high wall coal at phenomenally low costs.

Used in conjunction with your present strip mining equipment you can blend auger mined coal with your regular production and improve the overall quality substantially.

In mines where these machines have been in operation for the past two or three years, the Auger has paid for itself many times. In fact, under normal production conditions it should pay off the investment in six months or less.

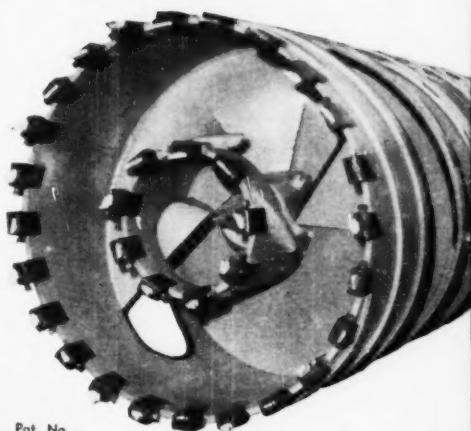
From the productive standpoint, the Model 42 shown here has been drilling 42 inch holes to a 189 foot depth and producing up to 500 tons per shift in the Pittsburgh seam. Another example—Nine Compton augers in use by five companies in three states have a total potential capacity of

1,800,000 tons per year based on 200 days of two shift work.

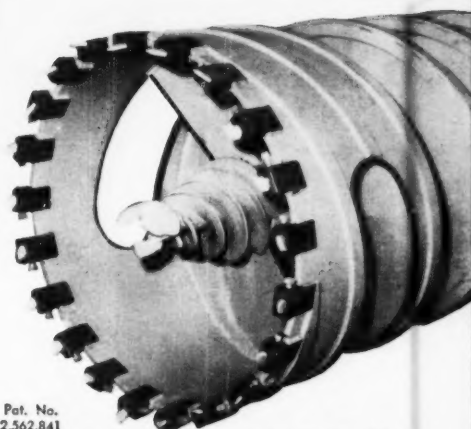
The Model 42 is 42 feet in length—weighs approximately 33 tons—carries nine 21 foot auger sections—requires only a 45 foot minimum pit width—is powered with 225 H.P. Diesel engine—has hydraulic jacks in each of the four vertical frame members which have a lift of 66 inches and permit drilling of overlapping holes—can be equipped with augers from 48 inch to 30 inch diameter.

The Compton Model 56 Auger is 56 feet in length—weighs approximately 50 tons—carries six 34 foot auger sections—requires a minimum pit width of 60 feet—also has a hydraulic lift of 66 inches and permits drilling of single or overlapping holes—is powered by a 300 H.P. Diesel engine—can be furnished with augers from 52 inch to 30 inch diameter—and provides a total drilling depth of 204 feet.





Pat. No.  
2,594,256



Pat. No.  
2,562,841

# MINING...

## COMPTON *Non-Clogging* AUGER HEADS

(PATENTED)

The unique cutting heads shown here were designed—developed and built by a coal operating company and their construction adheres closely to long accepted and proved practices of cutting coal. These new cutter heads have two types of core breakers which are interchangeable to meet the requirements of the various seam structures and to produce

more and larger lump coal.

The new type heads, capable of cutting coal at high speeds without clogging, assure a continuous flow of coal from head to truck during entire hole cutting operation. Maintaining a constant peripheral speed for all diameters makes it possible to get large tonnages even with the smaller diameter augers.

# COMPTON, Inc.

ORIGINATORS OF  
COMPTON LUMP  
RECOVERY HEAD

Box 1946 — Phone 4-6384

CLARKSBURG, W. VA.

*with* **GALION**



1 Roll-Over gravity side dump. Made in wide range of lengths and capacities.

## you can match your hoist and body to your job

Before you invest in heavy duty haulage equipment, consult your GALION distributor

He will be glad to survey your requirements and give you the benefit of his extensive hoist and body experience.

There's no charge or obligation for this extra GALION service. But, it's sure to save you substantial amounts of time and money by putting the right GALION hoist and body in the right place.

Remember, if your requirements can't be met perfectly by standard GALION equipment, GALION will engineer, design and build special haulage units for you . . . will match your equipment to your job.

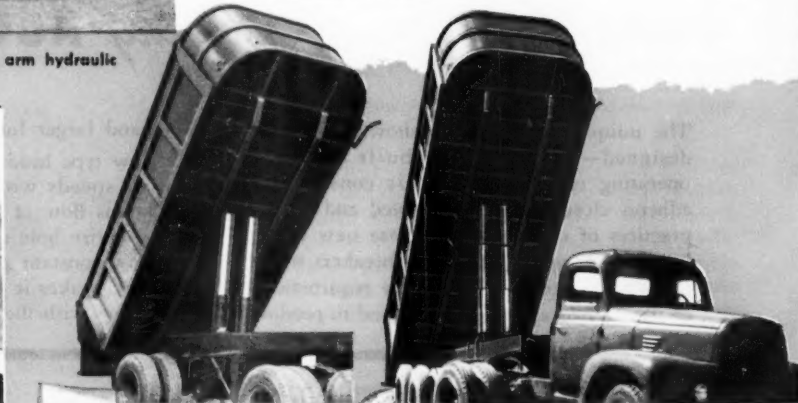
A 5822



2 Model No. 1000 heavy duty double lift arm hydraulic hoist easily handles 25 ton loads.



3 Closeup of 7" 3-sleeve twin telescopic hoist with automatic stop for bodies up to 25 ton capacity on tandem axle trucks.



4 16 ft. long trailer dump. Capacity of body is 11 1/2 yd. sides and 16 yd. ends with 7" single sleeve twin telescopic hoist.

5 16 yd. sides and 20 yd. ends with semi-bay front body with 7", 3-stage twin telescopic hoist.

**THE GALION** ALLSTEEL BODY COMPANY • GALION, OHIO

## Do You Know?

Greater interest in the voluntary prevention of air pollution in communities where industrial plants are located is evident from action revealed today consisting of the appointment of a full-time executive secretary of the committee on air pollution controls of the American Society of Mechanical Engineers.

The fact that this organization, composed in large part of mechanical engineers in industrial activities, has a permanent committee on air-pollution controls indicates the part that manufacturing establishments are taking in the prevention of obnoxious and even poisonous fumes escaping from their plants into the atmosphere. The appointment of a full-time secretary, Frederick S. Mallette of the United States Steel Company, indicates that even greater efforts in pollution control will be taken.

The committee, formed in 1949, is composed of 24 representatives of organizations having a substantial interest in the control of air pollution. Its chief objectives are to initiate and coordinate research concerning the health, comfort, nuisance, engineering and economic aspects of air pollution. In addition it is offering suggestions relative to practical methods of eradicating the nuisance.

Laws and city ordinances alone are not enough to secure the best results in eliminating air pollution. Voluntary efforts on the part of industrial plants are necessary. Also householders can help in the matter. Smoke from a single household chimney contributes little to atmospheric pollution but smoke from many may contribute more than that from several belching industrial stacks. When home-owners learn proper methods of firing furnaces, smoking chimneys will disappear.

Sit down while you work. Use your head. Figure out how to make your work come to you.

That advice was given the American Society of Engineering Education here by Dr. Lillian M. Gilbreth of "Cheaper by the Dozen" fame.

The efficiency pioneer said life can be easier for everyone of industrialists and homemakers apply to their own work some of the ideas that simplify work for handicapped persons. The reverse also is true.

The demand is for adjustable sinks, movable walls, lightweight household equipment and multi-purpose appliances, she said. It shows that today's husband does not want the kitchen to kill his wife—or himself, as the case may be.

Flexibility and teamwork are the work-simplification principles sought by engineers, home economists, doctors, the Red Cross and others working on the problem, she said.

Flexibility often means taking advantage of all three dimensions, making things below you as easy to reach as the things around you. Wheel chairs, for instance, should be adjustable up and down. A person then could fix the seat so he could reach the wheels more easily.

Team work is required between persons working with handicaps and persons simplifying operations in mines, offices, stores and schools.

"And remembr," Dr. Gilbreth said, "some of the best ideas and methods come from the homes of America."

## Here and There in the Coal Industry

Milton H. Fies, consulting mining engineer for Alabama Power Company since 1937 and in charge of its coal mining operations since 1946, has been elected vice president in charge of coal operations effective September 1.

• Dr. J. J. Rutledge, recently retired Director of the Maryland Bureau of Mines, died at the age of 85. Funeral services were held in Baltimore. He was a native of Illinois and had spent his entire career in and with the coal industry. He was associated with individual producing companies and the United States Bureau of Mines for many years and with the Maryland Bureau up until his retirement several months ago. He was one of the industry's production and safety pioneers.

Mr. E. F. Clevenger, General Manager of the Monongahela and Ohio Coal Company of Cleveland, Ohio, has recently been elected an Associate Member of the American Institute of Management.

Formed in 1948, the Institute is a non-profit foundation devoted to the study and improvement of corporate organization and management. More than 5,000 business executives now take part in AIM activities and projects, which include awarding annual Certificates of Management Excellence to companies which meet the Institutes standards. For the year 1951, such Certificates were presented to 308 concerns.

Headquarters of the Institute are at 50 Washington Mews, New York City.

• The Philadelphia and Reading Coal and Iron Company today (September 17, 1952) received the first award ever made to American business or industry of a flag signifying 100% employee donor participation in the Red Cross Blood Program. The award was made at a luncheon at the Benjamin Franklin Hotel at Philadelphia, with the staff of the company's Philadelphia headquarters, company and Red Cross officials as guests.

Rear Admiral Roscoe E. Schuirmann, USN (Ret.), blood program chairman of the Central Philadelphia Branch of Red Cross, presented the specially designed flag to

Howard Price, vice president and secretary of the company. The firm also received a Red Cross Certificate of Appreciation signed by E. Roland Harriman, president of the American National Red Cross.

The award was made in honor of the firm's 125 employees of the local headquarters who either gave blood or, if not able to donate, enlisted a substitute donor.

The Conference on Economic Research in the Bituminous Coal Industry will be held at the University of West Virginia College of Commerce, on October 10, 1952. Among those who are scheduled to participate in the program are L. C. Campbell, Vice President of Eastern Gas and Fuel Associates and President of NCA, and Dr. C. J. Potter, President of the Rochester and Pittsburgh Coal Co., Indiana, Pa.

The Colorado School of Mines has named two full-time instructors to its mining engineering department, famous the world over for the training it gives coal and metal mining engineers.

They are: Niles Grosvenor, who received both his bachelor's and Master's degrees from the Colorado School of Mines, in 1950 and 1952; and Thomas G. Morrow, graduate of the Montana School of Mines who is coming to the Colorado school from the eNw York and Honduras Rosario Mining Co., San Juancito, Honduras.

• The Education Committee of the National Coal Association met at Virginia Polytechnic Institute, Blacksburg, Virginia, on May 16 and 17, 1952, under the Chairmanship of Henry C. Woods, Chairman of the Board, Sahara Coal Company, Chicago, Illinois.

Virginia Polytechnic Institute is graduating 14 students in mining engineering in the Class of 1952. Most of them will be employed in the coal industry. The Department of Mining Engineering is headed by Professor Charles T. Holland, assisted by a faculty of competent teachers. Holden Hall, the building in which the Department is located, is well equipped with classrooms, laboratories, and machinery to properly prepare students for employment in the coal industry.

For Mining Operations Below Ground

Use **JEFFREY**



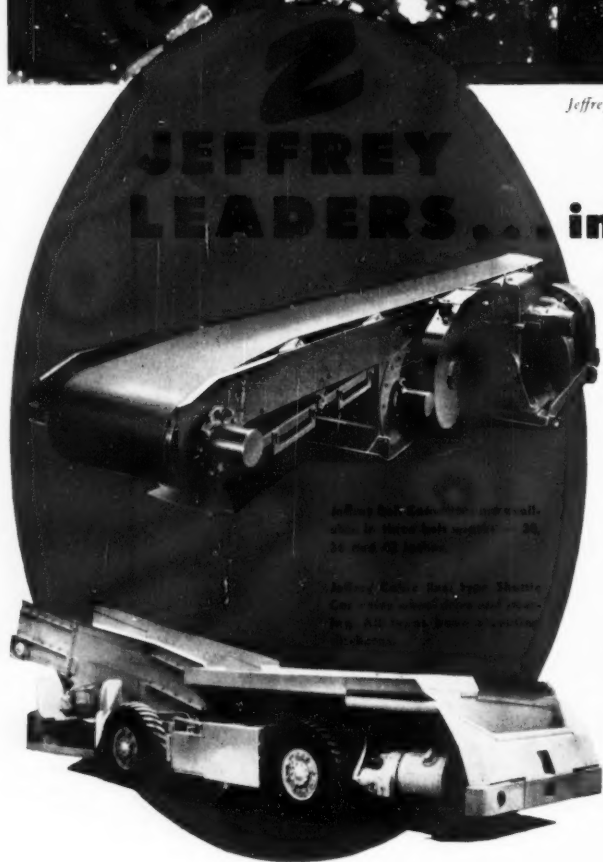
*Jeffrey Shuttle Car discharging into the end of a Belt Conveyor. Coal is kept on the move.*

**JEFFREY  
LEADERS...**

## **in underground transportation**

On this page we show two modern units that have proved most effective in transporting coal from face to tipple. Jeffrey Belt Conveyors for intermediate and main haulage handle large tonnages rapidly and provide low-cost maintenance—efficient operation.

Jeffrey Shuttle Cars, operating between the loader and conveyor, have come about as close to continuous production as most systems developed to date. This combination actually turns out more coal per shift at lower cost per ton than most methods. These cars are available in cable reel types with either two or four wheel drive and steering. Capacities— from 3.75 to 7.75 tons.



*Jeffrey Belt Cars—new and available in three belt widths—36, 48 and 72 inches.*

*Jeffrey Shuttle Cars—new Shuttle Cars—new wheel drive and steering. Big 40 ton capacity available.*



and Coal Preparation Topground

# EQUIPMENT

## JEFFREY CRUSHERS for COAL MINES

Today more than ever it is essential to reduce coal to marketable sizes to meet customers' needs adequately. Jeffrey Crushers enable coal mines to meet each new demand for a uniform stoker coal and to dispose of surplus lump by reducing it to acceptable sizes.

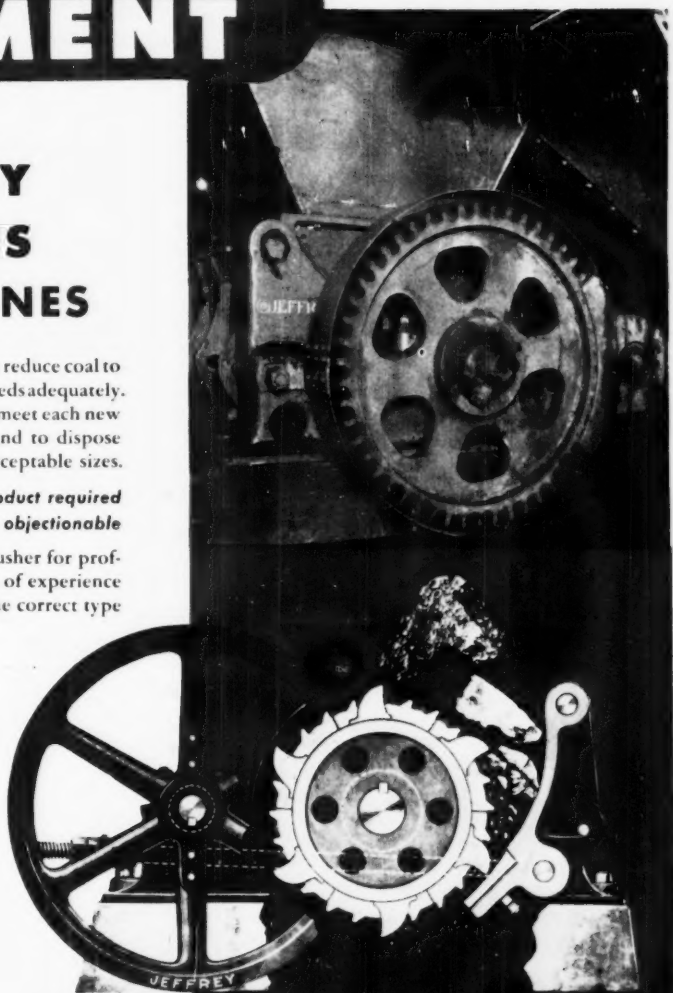
**Maximum size of feed • Size of product required  
Kind of coal • Size of fines that are objectionable**

... ALL have a bearing on type of crusher for profitable operation. More than 65 years of experience enable Jeffrey Engineers to specify the correct type of unit for greatest profit, whether it be Single Roll, Double Roll or a FLEXTOOTH Crusher.

Details of construction and application to your requirements are readily available by calling in a Jeffrey Sales Engineer. *Do it today.*

**TOP** — shown is a Jeffrey 30" x 60" single roll crusher installed in a Kentucky mine and used for reducing entire output to desired sizes.

**RIGHT** — a cross-section view of the Jeffrey Single Roll Crusher. Also Double Roll, FLEXTOOTH and FLEXROLL Crushers in a wide range of sizes.



# JEFFREY

Established 1877





The Marion Model 5323 Electric Shovel with 18 cubic yard bucket at the Ozark Philpott Operation of the Utah Construction Company.

## Stripping Coal In Arkansas



Looking at the Marion 5323 shovel from the rear.

- In the labor force as a whole the average of skill today is higher than 50 years ago. In manufacturing, the average hourly output by the individual worker rose at the rate three per cent for the past several decades, even before World War II.

It is this increased productivity that is mainly responsible for this nation's present high standard of living and its position as the outstanding industrial machine in the world.

Our average level of education and occupational training has risen constantly during the past half-century and the trend is to a much higher level.

If our world leadership is to be maintained it is essential that we develop the skills of all our people to the maximum of their potential.

Human society can be changed in several generations. Our need for change is urgent and the time scale of social change is so vastly less than that of evolutionary change that our duty to reform society is far more urgent than to control evolution. We could resort to the time scale of social change by a heavy investment in the health and training of our youth.

How far can and will man evolve intellectually?

The physical and biological world in which we live is truly astounding and wonderful. The intellectual activities of the average man may become a source of happiness to him comparable to that provided by his emotions. No matter what the extent of his general education, or the caliber of his mental abilities, every human being might achieve satisfaction and increased happiness through increased knowledge and understanding.

As society becomes more complex, there is a definite tendency toward a mixture of components. First man used his legs, later animals to transport him. At present he is using a combination of machines and man. Society is now taking several different classes of entity such as machines, chemicals, words and man and forming them into complicated but helpful devices. Instead of developing man's brain cells to a point where he can think with the required speed to perform present day functions society is working up an aggregation of electron tubes, wires, resistors and condensers to do his thinking for him.



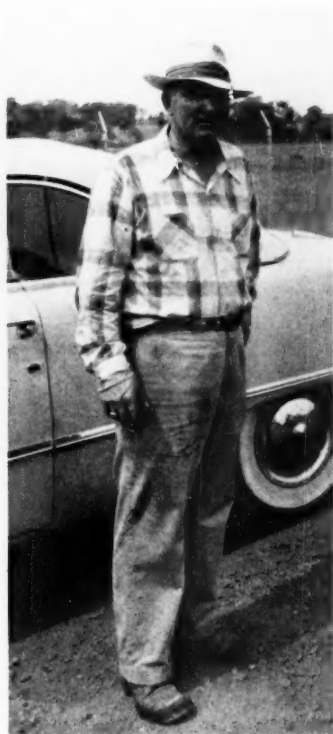
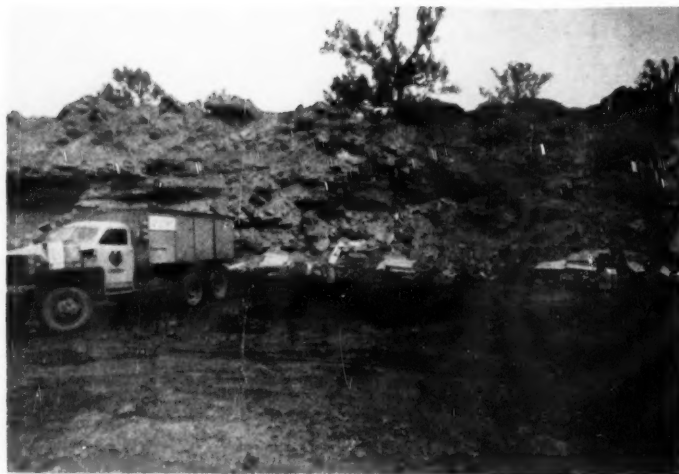
Four inch Jeager Pump and Caterpillar D Tractor working with the Marion Shovel at the Ozark-Philpot Operation.



Model 625 Page Dragline with 10 cubic yard bucket at the Ozark-Philpot Operation.



The Four McCarthy Drills Working in pit at the Ozark-Philpot Operation.



Above: Truck delivering powder; right: M. H. Buzby, Supt.; below center two: views show method of cleaning surface of stripped coal; Lower left: cleaned coal reserve and right: out at the Ozark-Philpott operation.



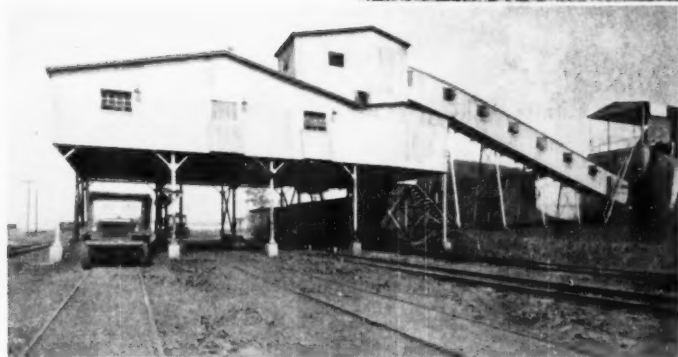




Left: Twenty yard Euclid Deisel driven truck hauling coal to tippie at the Ozark-Philpott operation.



Right: Haulage road at the Ozark-Philpott operation.



Left: Dry preparation plant at the Ozark-Philpott operation.



Right: Flotation plant at the Ozark-Philpott operation.



Surface buildings at Ozark-Philpott operation, housing office, repair shops, supplies storage as well as equipment storage yard.



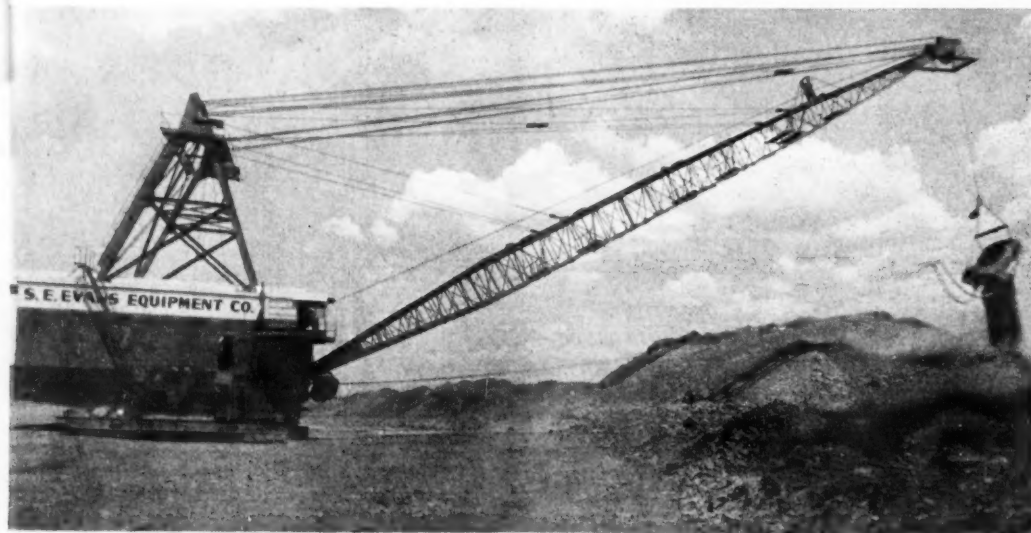
Field office at the Evans Coal Company at Spiro, Oklahoma; men standing there are: E. E. Whitten, Tipple Foreman and C. S. Wilson, Field Office Manager.

In science we have profited more from what we call chance than from preconceived theory or design.

Like it or not we are in an age in which products of scientific inquiry confront us from every angle. Every one of us needs to understand science and scientists.

In the past three decades science has made areas of growing things yield from 25% to 300% more. More is to be learned. In the meantime we have more to eat, more to wear and to use in many other ways.

Discoveries disclose vast fields for investigation to satisfy curiosity or to satisfy human wants. Whether it be personal ambition, sheer curiosity or desire to render social service, contributions of in-



Dragline operating at the Evans Coal Company, Spiro, Oklahoma.

investigators and inventors are integrated into the guiding principles for better understanding and for more effective utilization.

Science expects to reveal to-

---

**Right:** Looking down a cut at the Evans Coal Company operation. Left is top soil covered spill bank, middle is cut down to the coal, right shows the 12 to 15 foot top soil cut made by the dragline from key position in stripping operation.

---

morrow new theories that will supersede theories of today and bring man one step further in knowledge of incontrovertible truth.

In Arkansas, like in other sections of this Nation, education and occupational training are making

---

**Right:** Two pick-up trucks equipped with two-way Radio communication at the Evans Coal Co.

---

great strides. In fact Arkansas offers the greatest opportunity for success in this Nation today. The advice of a century ago to the young man to go west has been revised to go to Arkansas young man.

While coal is mined in 6 counties in Arkansas coal stripping is confined to 4 counties; namely, Franklin, Johnson, Scott and Sebastian counties, and 3 adjacent counties in Oklahoma; namely, Haskell, Le Flore and Sequoyah.

The strippable areas are sections of seams of coal in Oklahoma as well as in Arkansas that lie comparatively close to the surface and because they are thinner than average were not deep mined in the past. These coals are very desirable for belonging with other coals

---

**Right:** McCarthy Horizontal earth drill making shot holes at the Evans Coal Company.

---

in making metallurgical coke for use in mills in Colorado and for use in smelters in Arkansas and adjoining states.

The northernmost deposit lying in the vicinity of Clarksville is harder in physical structure and lower in volatile matter. This coal is known as Arkansas anthracite but it is semi-anthracite in rank.

There are no outcrops in either of the states, therefore all stripping operation are started by box cut. The largest coal stripping in the areas is that of the Utah Construction Company, known as the Ozark-Philpott operation. It lies in Johnson County near the town of Ozark,





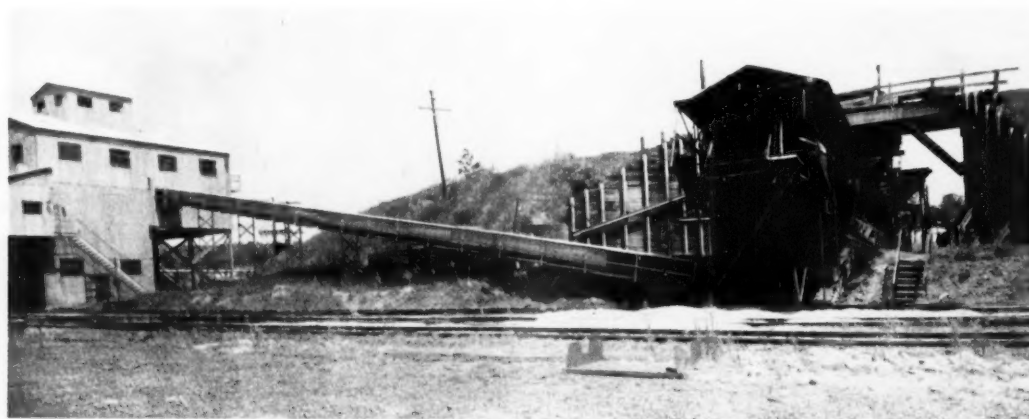
View shows the disintegrating shale highwall at the Evans Coal Company at Spiro, Oklahoma. At this point the highwall is 33 feet high. Note how the coal rolls. The tractor in the pit is equipped with an 8-inch Jeager pump.



Caterpillar D-6 tractor cleaning surface of stripped coal at the Evans Coal Co.

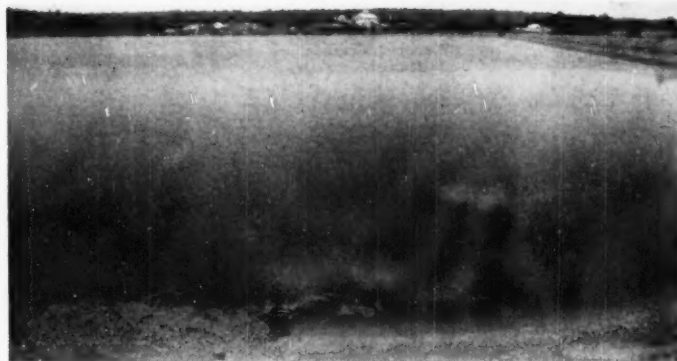


Close-up view of the 8-inch Jeager pump on the Caterpillar tractor at the Evans Coal Company.

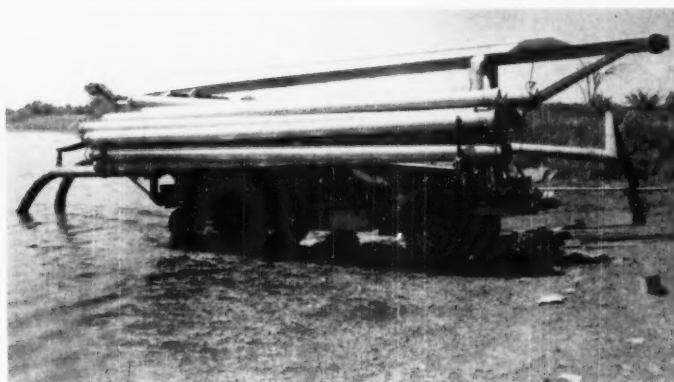


Truck dumping platform and coal washing plant at the Evans Coal Company. Run-of-mine coal is loaded from the conveyor on right.





Lake that supplies cleaning plant water at the Evans Coal Company. Note cleaning plant in the middle of the background.



This halftrac carries the two 8-inch Jeager Deisel driven pumps and a supply of pipe for pumping cleaning plant water at the Evans Coal Company.



The International T D 24 tractor working at the unnamed mine in Oklahoma.



One of the Marion Model 111 shovels at the same mine.

Arkansas. The Philpott seam, believed to be part of the Hartsthorne seam which generally is being stripped, lies in this area. The coal averages 17 inches in thickness and the seam is very roly. In some of the area where it ends, it slopes as much as 20 degrees and cannot be stripped. Typical analyses of this coal run as follows:

sulphur	less than	1%
Ash		4.85
Vol	15% to 19%	
F S I		7 to 19
C L		15,000
P I		5.0
Moisture		4.5
B T U		14,000

Overburden on the coal consists of fire clay, rock, blue and yellow shale and loam. This overburden is drilled with 4 McCarthy horizontal drills—2 electrically, 2 Deisel driven. The 2 Deisel units are used in out of the way places where electric power has not yet been extended. Ditches are made around the operating area to divert surface water out of the pits. Accumulated water in the pits is pumped with Jeager pumps.

Overburden is moved with Caterpillar 8 yard and 16 yard scrapers, powered by Caterpillar D-8 tractors which move the top layer of loam, this operation is followed by a Marion Model 5323 Electrically driven shovel having 18 cubic yard dipper. A 22 cubic yard dipper for this shovel is on order. A Page Model 625 dragline having 145 foot boom and 10 yard Esco bucket also does stripping. Four Caterpillar D-8 tractors do many other chores around the operation. Average overall cover moved runs 24 feet of the stripped coal cleaned with 2 Model 12 Caterpillar Road Patrols

(Continued on Page 33)



# "EUC" PERFORMANCE *Pays Off*

**IN MINES and  
QUARRIES**

"Eucs" are designed and built for moving coal, rock, ore, overburden and heavy excavation at the lowest cost. The simple but rugged construction of Euclids, combined with large capacity, ample power and speed, provide efficient off-the-highway hauling of practically any material.

Euclids are standard equipment in many leading open pit mines and quarries, and on construction and industrial work. Owners know that Euclid staying power and continuous operation result in more loads hauled in less time at lower cost.

Ask your Euclid distributor for data on quarry or open pit jobs similar to yours. There is a Euclid to meet your requirements for off-the-highway hauling work.



Rear-Dump Euclids—Capacity from 10 to 34 tons—diesel engines from 125 to 400 h.p., spring mounted or semi-rigid drive axles—top speed loaded up to 35.7 m.p.h.

**MORE LOADS PER HOUR—  
MORE PROFIT PER LOAD**

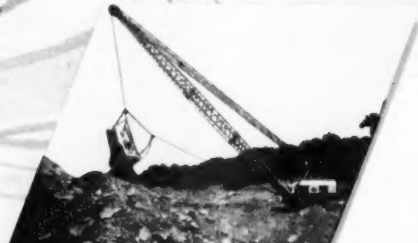
The EUCLID ROAD MACHINERY Co., Cleveland 17, Ohio



# MAKE *Highway* YOUR HEADQUARTERS FOR LIMA SHOVELS AND EVERY TYPE OF EFFICIENT MINE MACHINERY



Servanti Coal Co. . . . Waltersburg, Pa.



E. N. Turner & Sons . . . Harrisville, Pa.



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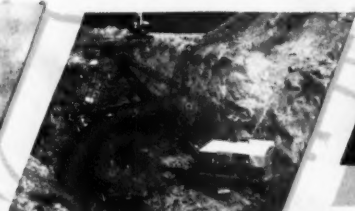
Mottorn & Thompson, Philipshurg, Pa.



McCombie Coal Co., Barnesboro, Pa.



Diamond T Stripping Co., New Milport, Pa.



Frank Pulford, Punxsutawney, Pa.



Lamkie Bros. . . .  
Glen Campbell, Pa.

Lima Shovels, Cranes,  
Draglines—used by leading  
operators everywhere—  
are typical of the fine equipment  
sold, serviced and guaranteed  
by Highway.

See your Highway  
representative today. He'll be glad  
to discuss your problems—  
to help you boost your  
production and profits.

A 1010

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EQUIPMENT  
COMPANY

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CRANE • GENERAL MOTORS DIESEL ENGINES •  
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Mike Koshko . . . Clarence, Pa.



Toronto Coal Co. . . . Knoxville, Ohio



River Hill Coal Co. . . .  
Pottersdale, Pa.

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Today—more than ever before—efficient equipment is the sure key to profitable, peak production.

That's why it will pay you to rely on Highway for *all* of your equipment needs. Highway's staff of trained mine equipment experts will consider it a privilege to inspect your jobs and make sound, economical suggestions that will speed up your work and cut your costs.

A-6006



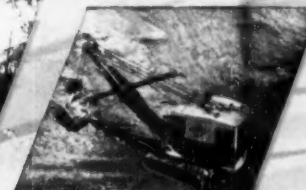
Swaney & Meals . . . Uniontown, Pa.



Robert Bailey . . . Morrisdale, Pa.



Frank Mashuda . . .  
Donbar, Pa.



Corman Ambrosia Coal Co. . .  
New Castle, Pa.

Weirton Construction Co. . . . Weirton,  
West Virginia



River Hill Coal Co. . . . Keewardin, Pa.



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LIMA SHOVELS, CRANES, DRAGLINES • ERIE BINS

*For the*  
**MOST DEPENDABLE**  
**MOST ECONOMICAL**

# COAL CRUSHING EQUIPMENT

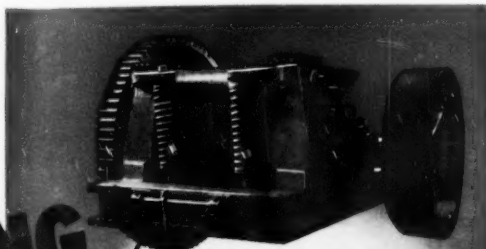
*Specify*  
**McLANAHAN**

Backed by 117 years of manufacturing experience, McLanahan builds crushing equipment for the ultimate in economy through long service and minimum maintenance costs. This equipment, which has been thoroughly service-proven on the most demanding of domestic and foreign installations, is available in a great variety of sizes for every coal crushing requirement. A pioneer in the development of many types of crushing equipment—including the first single roll crusher produced in 1894—McLanahan is equipped to produce complete units, from feeders, primary and reduction crushers through elevators, sizing screens, etc.

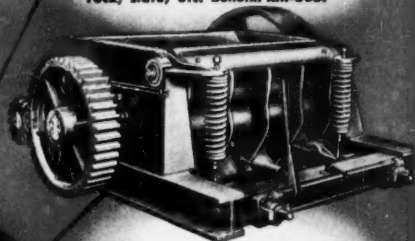
**WRITE FOR BULLETINS:** Separate bulletins are available on all the crushers shown, and on a wide variety of other equipment.

## McLANAHAN & STONE CORPORATION

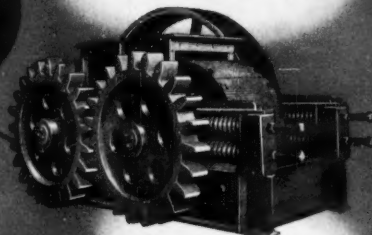
*Pit, Mine and Quarry Equipment Headquarters Since 1835*  
**Hollidaysburg, Pennsylvania**



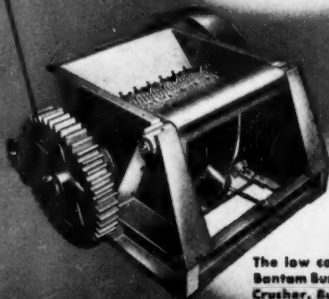
Single Roll Rockmaster Crusher for both primary and secondary crushing. Used in crushing mine refuse, sulphur balls, sand rock, slate, etc. Bulletin RM-305.



Single Roll Black Diamond Crusher with exclusive automatic steelstrut toggle and quick adjustment. Bulletin BD-457.



McLanahan Double Roll Crusher for various reductions of medium-size lumps. Bulletin DR-447.



The low cost McLanahan Bantam Buster Single Roll Crusher. Bulletin BB-5123.

**Dependable Products:** Single and Double Roll—and Jaw Crushers, Crushing Plants, Reciprocating Plate and Apron Feeders, Roll Grizzlies, Conveyors, Elevators, Screens, Scrubbers, Steel Log Washers, Sand Drags, Hoists, Jigs, Dry Pans, Dryers, Sump Pumps, Pallets, Gears, Bearings, Sprinklers, Sheaves, Rollers, Bin Gates, Elevator Buckets, Gratings, Car Wheels, Ferraris and Rescue Castings.



Loading out coal with the two yard Esco coal loading bucket at the unnamed mine in Oklahoma.

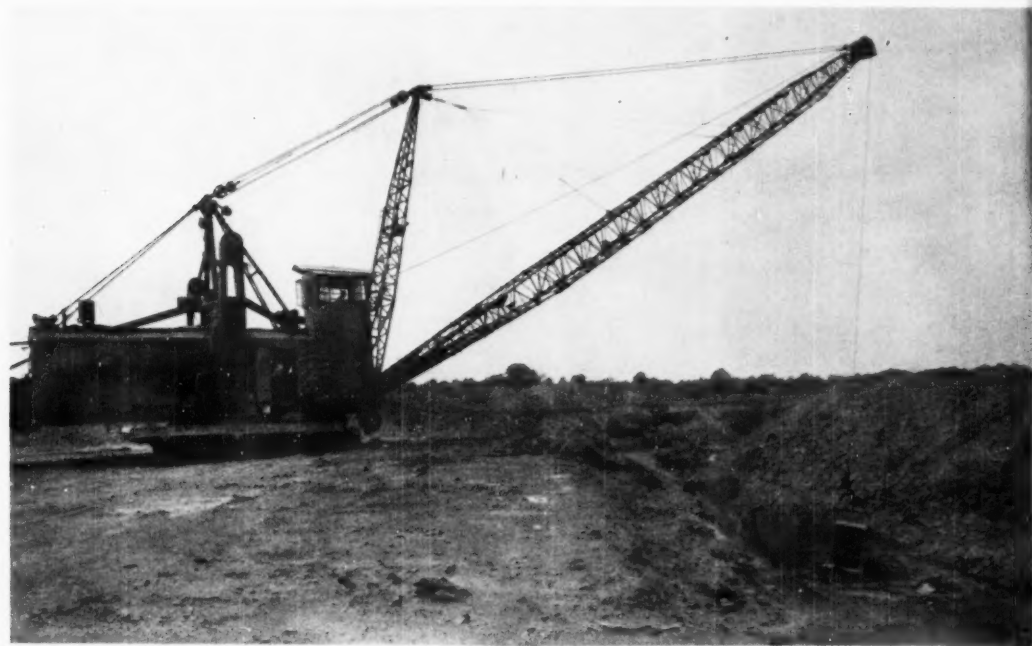
(Continued from Page 27)

and with a revolving broom. Coal is loaded with a 4 yard Esco bucket, into 20 cubic yard Euclid trucks which haul to a dry preparation plant. A separate flotation plant has been installed at this operation to recover the valuable fine coal scraped from the surface of the seam by the road patrol and the sweeper.

There is one strip operation, at this time, in the Spadra or semi-anthracite seam in the vicinity of Clarksville, Arkansas. This is the operation of the Morrow coal Company. The Spadra seam, at this point, averages 36 inches in thickness. Oxerburden is rock, shale and loam. Up to 35 feet of this cover is moved with a Page Model 621 dragline, equipped with a 6½

yard Esco bucket. A caterpillar D-8 tractor is also used in stripping. Coal is loaded with a small Marion shovel, equipped with an Esco coal loading bucket. Despite the fact that this seam is twice as thick as the Hartsthorne seam, it is not suited to metallurgical or smelting uses, therefore, its only market is industrial steam generation and domestic heating.

The second largest operation in the area is that of the Evans Coal Company at Spiro, Oklahoma. In Oklahoma the strippable Hartsthorne seam lies in pockets and is covered mostly by a grey shale that readily disintegrates when exposed to the air. Rock is found directly on the coal at times. At the Evans Coal Company, rock is present in some of the area and in stripping rock area the rock is moved first from a key position in the cut and is placed at the bottom of the spoil bank. The disintegrating shale is then placed on the rock which keeps it from running onto stripped coal, then the dragline takes from 12 to 15 feet of top loam from the next cut, thus not only holding the bothersome shale in place but also placing top soil on top the spoil bank where it should be placed. Drilling of the over-



This is the Page Model 621 dragline Stripping semi-anthracite at the Morrow Coal Company.



McCarthy horizontal drill working in pit at the Cedar Creek Coal Company.

burden is done with a 6 inch McCarthy vertical drill.

Two Caterpillar D-6 tractors are used to clean the surface of the stripped coal. One of the tractors has mounted on its rear end an 8

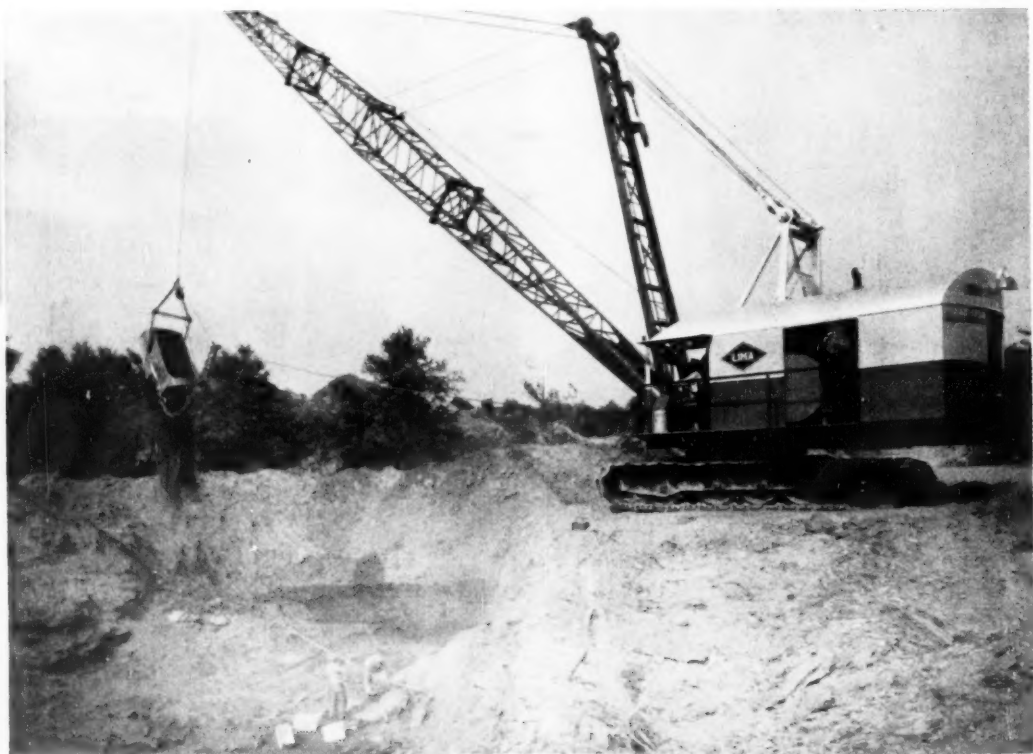
inch Jeager pump for emergency pumping in the box cuts.

The coal averages 30 inches in thickness and maintains its characteristic rolls. Sulphur in the coal runs 0.6 and after washing the

output goes to the metallurgical market. Large private lakes are maintained for washery water supply. Water from the lakes is pumped from various points in the lakes by two 8 inch Jeager pumps mounted on a halftract which is driven into the lakes.

The coal is crushed before it is washed and fines in the refuse are run over concentrating tables. This operation has two pick-up trucks fitted with 2-way radios for conversation with the dragline operator, the repair shop and the field office.

There is another good sized operation in Oklahoma which does not want to be identified. At that operation the coal is 18 inches thick and belongs to the Stigler seam. Overburden consists of a blue shale that runs from 0 to 28 feet thick, then about 10 feet of clay. Stripping is done with a new Lima Model 2400, equipped with a 6½ yard Page bucket and two Marion Model 111 draglines equipped with 4 yard Esco bucket. The top clay is pushed by 2 T D 24 tractors. Drill-



The Model 1201 Lima dragline stripping overburden at the Cedar Creek Coal Company near Stigler, Oklahoma.



ing of the shale is done with a Model 103 McCarthy drill. Coal is loaded with a shovel equipped with an Esco coal loading shovel.

The coal runs 0.7 in sulphur, 2.0 in moisture and 5% ash.

About 14 miles from Stigler, Oklahoma, the Cedar Creek Coal made a box cut to reach a 27 inch seam of the Stigler coal which was noticed in a creek bottom. Overburden there is gray shale on the coal and clay on the surface. The shale is drilled with a McCarthy horizontal drill. The stripping is done with a Lima Model 1201 dragline, equipped with a 3 yard Page bucket. The coal is hard in nature and is broken up for loading with a pinning machine mounted on a D-6 Caterpillar tractor. Loading out is done with a Tractson equipment with a coal loading front.

This story and pictures and the story following about Bauxite stripping, have been made possible by the splendid and unselfish cooperation of R. A. Young & Son, Inc. of Fort Smith and Little Rock, Arkansas, dealer in such stripping



The coal pinning machine at the Cedar Creek Coal Company.

machinery as Esco and Hendrix buckets, Lima shovels and draglines, McCarthy Earth Drills and other supplies.

A new catalog sheet covering models IFFD and 4FFD Rear-Dump Euclids of 34-ton capacity has been released by The Euclid Road Machinery Company.

Twin power, pioneered in the off-the-highway field by Euclid, is a feature of both models. Side by side diesel engines of 380 and 400 total horsepower are employed, each engine driving separate rear axles through torque converts and transmissions. The two models are spring mounted and hydraulic booster steering is standard equipment.

The catalog sheet gives detailed specification data and is available from Euclid distributors or the home office of Euclid at Cleveland 17, Ohio.



The French Iron Ore Mining Productivity team which visited the United States metal and coal mines under the auspices of the Mutual Security Agency. They first visited ore and metal mines in the West. July 21 they visited the coal mine of the Bell & Zoller Coal & Mining Company at Johnson City, Illinois. July 22 they were at the West Frankfort Mine of the Old Benn Coal Corporation and July 23 at the Benton, Illinois mine of the Chicago, Wilmington & Franklin Coal Corporation.

On Monday, July 25 the group visited the plant of the Mine Safety Appliances Company in Pittsburgh, Pennsylvania. July 28 it visited the Emerald Mine of the Hillman Coal & Coke Company at Clarksville, Pennsylvania, where this picture was taken.

An eight page catalog folder covering the 15.5 Cu. Yd. Euclid Scraper has been leased by The Euclid Road Machinery Co. It describes and illustrates major design features and provides detailed specification data.

The 15.5 Cu. Yd. Euclid Scraper hauls loads of 21 Cu. Yds. heaped at a 1:1 slope and 18 cu yds. at a 3:1 slope. It has a 275 h.p. engine, 10 speed transmission, 24:00 x 25 tires, and independently actuated hydraulic controls. Top speed loaded is 28.2 m.p.h.

The catalog folder is available from Euclid distributors or by writing Euclid at Cleveland 17, Ohio.



The Marion 7400 dragline stripping overburden. The light area in the foreground is the bauxite ore.



Here is a pit full of water and mud. The two large pumps on floats have left only muck in the pit which is being loaded into the haulage trucks by one of the Marion 111 draglines for hauling out of the pit. The black line in the island highwall is the deposit of lignitic clay.

## Glimpse Into Bauxite Stripping in Arkansas

Back when the North Shore of the Gulf of Mexico was in the vicinity of St. Louis, Missouri, the erosive action of incoming water dug pockets in the floor of the gulf. Actions of the sea in the opposite direction filled those pockets with a metallic material we now call Bauxite, a material from which we make aluminum. Further filling in of the gulf, presumably by the Mississippi River, covered those deposits with bauxilated clays running as much as 30 feet in thickness, with lignite coal and lignitic clay running up to 6 feet in thickness, with washed gravel and sandy loam. The lignite is not of a qual-

ity to allow separate mining. This cover runs well over 100 feet thick in places and the ore is mined by the strip and deep mining methods. This story is confined to stripping only, at the Hurricane Mine of the Reynolds Mining Company, subsidiary of the Reynolds Metal Company.

The top layer of sandy loam and washed gravel is stripped with three 13 cubic yard Tournapulls and two 9 cubic yard Tournapulls, pushed in the loading operation by two Tournadozers. A Marion Model 7400 electrically operated dragline with 200 foot boom and 11 cubic yard Hendrix bucket, four

Marion Model 111 shovels, three Northwest shovels, two lima shovels, six Caterpillar D-8 tractors and thirty Euclid trucks are used in the stripping and hauling operations.

The pockets of ore all lie below the surface of the terrain and stripping operations must be started by making box cuts. The ore is sometimes followed to more than 80 feet below the surface in stripping. Rains often wash the sandy cover into the pits and onto the uncovered ore creating an enormous water pumping problem as well as a problem of moving the muds that settle on the ore after the water is



Tornadozer pushing Tournapull in moving the top layer of sandy loam.



The McCarthy vertical drill, drilling the Bauxite ore for shooting and loading.



Euclid trucks hauling muck from a pit.



Looking down into an 80 foot deep pit after it has been pumped out. Note pump in the left foreground.

pumped out. This generally requires the use of large pumps and of a dragline and a number of the Euclid trucks to haul the muck out of the pits.

The bed of ore is of a hard nature and is drilled for loading by a vertical McCarthy drill. The ore is hauled to a preparation plant on the property where, after it is prepared, is blended with various kinds of imported bauxite ores and made into raw aluminum products.

Electronic scales buried under highways now can weigh trucks as fast as they speed by.

Often used to measure weights of moving railroad cars, the scales were adapted to highways by engineers here of the Bureau of Public Roads. The scales may replace the costly and time-consuming process used at present.

The truck's gross weight, speed, axle weights and axle spacings all can be measured in a fraction of a second when a fast-moving truck rolls across an inconspicuous platform laid into the road.

Electric strain gages and an oscilloscope combine to produce patterns on a screen that reveal the data about the trucks.

Strain gages are lengths of wire of a known resistance which allow a certain amount of current to flow through them. When the wires are stretched or compressed, the resistance changes and so does the current through them. That, in turn, is recorded on the screen of the oscilloscope.

The accuracy of the scales compares favorably to the accuracies of scales that weigh trucks standing still. Research engineers believe even more accuracy can be obtained in time.

The most influential single factor in development and design of automatically operated instruments is electronics. The trend is toward miniturization and automatic operation. Maintenance will be minimized by self checking features to be built into the newer instruments.

Although large manufacturers have made inventing part of their business by maintaining teams of inventors who pool their patents, well over 50 per cent of our patents come from free-lance inventors.

Recorded history of man dates back about 30,000 years. Archeologists have dug up crude tools used by man as far back as 20,000 years or more. The gradually increasing use of tools enhanced man's mechanical environment thus helping him to reach our present state of technological progress. On man's present record of mechanical progress, it is reasonable to assume that his technological advancement will speed up with time.



Model 7400 Marion Deisel driven dragline stripping lignite in Texas.

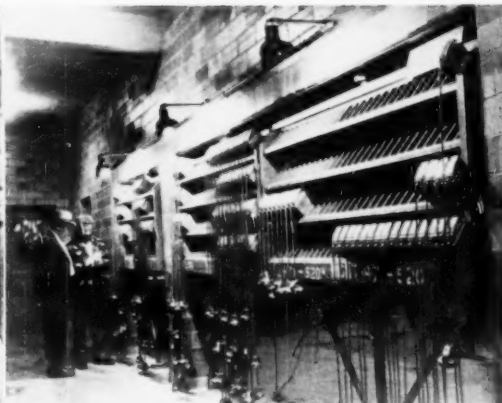


Lima Model 1201 shovel and Lima Model 1201 dragline working in tandem at the Grove operation at Kyle, near Fairchance, Pennsylvania.





Lamproom side of the new "self-service" lamp distribution system at Mather Mine "B" Shaft of Negaunee Mine Company. Reversible racks enable attendants to keep lamps separated for each shift, increase the speed and accuracy with which lamps are distributed and returned. Shown at the right is a special dolly to carry the lamps between the distribution racks and charging racks.



Al Stromquist (left) and Sig Anderson, safety director and chief electrician respectively, are shown examining one of the Edison R-4 electric cap lamps at Mather Mine "B" Shaft's new lamp distribution center. This "self-service" rack revolves between the lamproom and the corridor through which miners pass to and from the shaft.

• Physical design and operating procedures of a new lamphouse at the Mather Mine "B" Shaft of Negaunee Mine Company, in Negaunee, Michigan, include all of the basic elements for efficient maintenance and distribution of miners' cap lamps.

Management of the mine planned the new system to provide: (1) speedy and easy distribution and return of lamps; (2) positive control of distribution, charging and maintenance; (3) maximum utilization of available space, and (4) functional efficiency and responsibility of lamphouse personnel.

Perhaps the outstanding feature of the new operation is the use of reversible "self-service" racks for daily distribution of the new Edison R-4 electric cap lamps, which were supplied to the firm by Mine Safety Appliances Company. At "B" Shaft, a total of 544 of the R-4 lamps have been placed in service.

The unique racks are built on center pivots in one wall of a corridor between the changehouse and the shaft. On the opposite side of the wall is the lamproom. This arrangement enables lamproom attendants to insert charged lamps in slots on one side of the racks and then swing the entire panel around to face the corridor where miners quickly and easily can remove their individual lamps. There are three separate reversible racks, each clearly marked as to shift and clock number groups. Total capa-

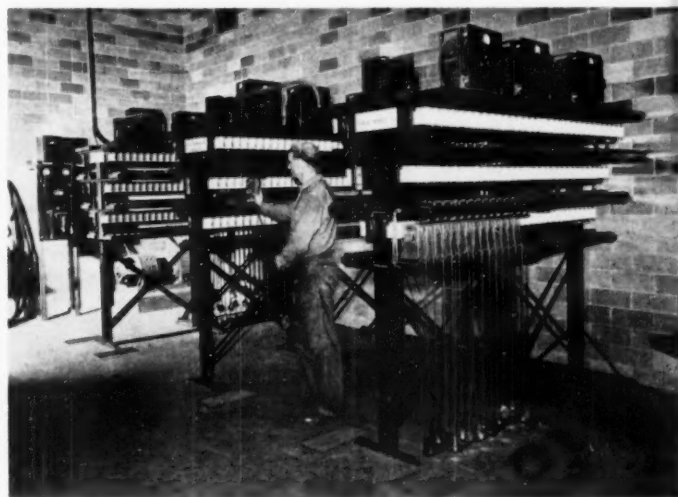
city of the racks is 696 R-4 lamps.

This type of lamp distribution, the management said, has increased substantially the speed with which miners can pick up or leave their lamps, a feature that is beneficial to miners and management alike. There is no chance, moreover, of an uncharged lamp getting back into service.

When the distribution racks are swung around to face the lamproom, the attendant merely re-

moves the lamps from that shift and loads them on a specially designed dolly which then is wheeled to the Edison R-4 charging racks. Each lamp is carefully inspected before it is placed in the charging rack.

Just as the Edison R-4 lamps have increased the amount of illumination for each miner at Shaft "B", the new lamphouse system has increased the efficiency of distribution and maintenance.



Edison charging racks for R-4 Lamps used at "B" Shaft are shown here. Lamproom attendant has positive control over lamp charging and maintenance. The reversible distribution racks have helped increase efficiency of the overall system.



Allis-Chalmers Model H D 20 tractor pushing top soil off the coal ahead of the shovel and dragline.

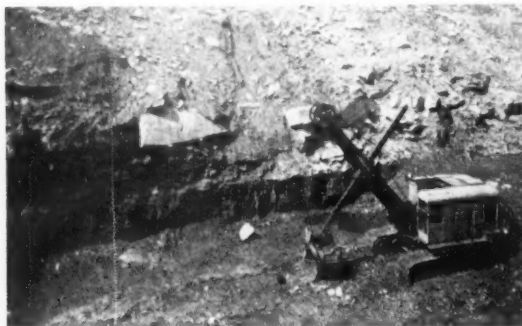
## Recovering Valuable, Abandoned Connellsville Coking Coal, Near Fairchance, Pennsylvania

The growing scarcity of the Connellsville high quality coking coal for Metallurgical purposes in the Pittsburgh, Pennsylvania, steel producing area is making it necessary to recover the numerous pockets

and abandoned outcrops of this valuable coal. Modern stripping machinery and techniques are making such operation possible and profitable to the owners of the coal and to the stripper.

At Kyle, near Fairchance which

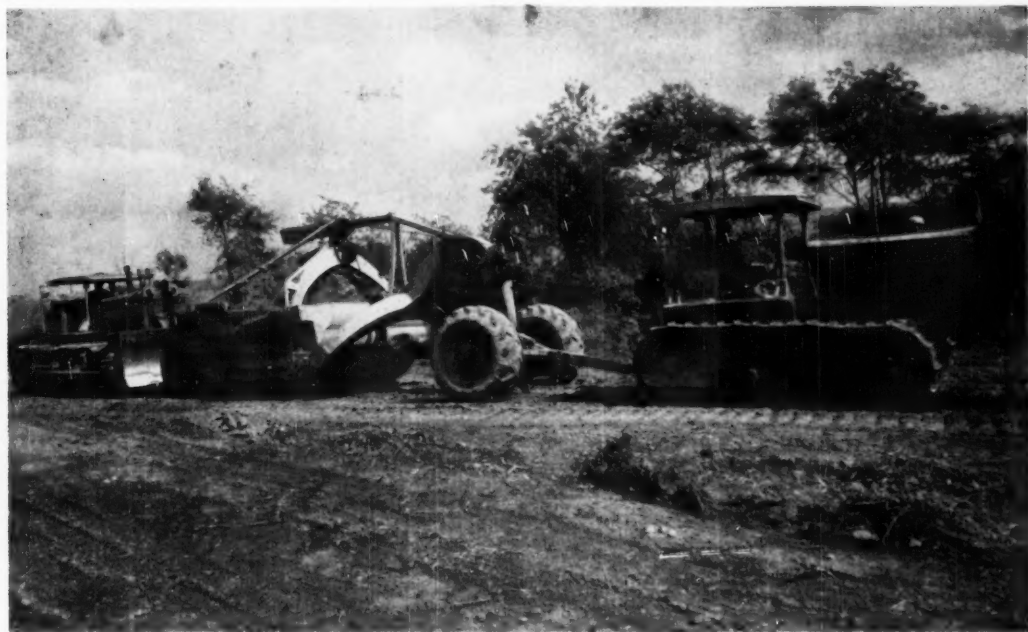
lies about six miles South of Uniontown C. H. Groves is stripping a comparatively large area of the Connellsville coking coal which has been left in deep mining. This coal lies in the lower areas of the region, generally along and under a creek



Looking into the pit after coal has been loaded out. This is in the solid coal area, which has not been deep mined.



A close up view of the seam of coal where a deep mine entry has been encountered. The 6-inch Jaeger pump has been used to dewater the pit which included water from the old workings.



Allis-Chalmers H D 20 tractor pushing and Caterpillar D-8 pulling a LeTourneau scraper stripping top soil.

bottom and is covered by thick sandstone or hard blue shale. Sandstone on the coal is covered with blue shale which turns yellow as it reaches the top layer of loam. Where the blue shale lies on the

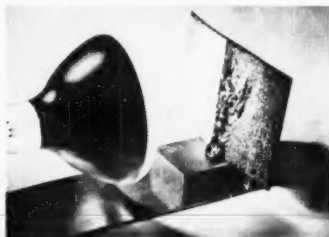
coal it is hard as rock but also turns yellow as it nears the surface. Stripping is done with a Lima Model 1201 Dragline and Lima Model 1201 shovel.

The coal seam runs from 5 to 9

feet in thickness and carries the conventional Pittsburgh seam rooster coal above it. Loading is done with a Lorain shovel. The output is hauled to Beehive oven right there on the property.

• A new gold-colored extra high heat resistant paint known as HEAT-REM XG-170 Gold is announced by Speco, Inc., Cleveland.

Made of copper flakes in a silicone base, the new paint will withstand temperatures up to 1700°F, according to the manufacturer, and will "air dry" in approximately 30 minutes.



Because of its high copper content, HEAT-REM XG-170 Gold prevents rust and is resistant to corrosion from mild acids, alkalis and industrial fumes. Upon heating, it

is reputed to fuse with the surface of the metal on which it is applied, forming a solid copper coating which contracts and expands with temperature changes.

HEAT-REM XG-170 Gold was developed especially for use on high pressure boilers. It is also recommended for ovens, exhaust manifolds, heat lines, compressors, engine heads, radiators, etc. It is a companion product to Speco HEAT-REM H-170 Aluminum and HEAT-REM Standard Aluminum.

Write for information to Speco, Inc., 7308 Associate Avenue, Cleveland 9, Ohio.

• Appointment of Robert P. Kloeckner as sales representative for the Fageol Heat Machine Company, Detroit, is announced by R. H. Randolph, general sales manager.

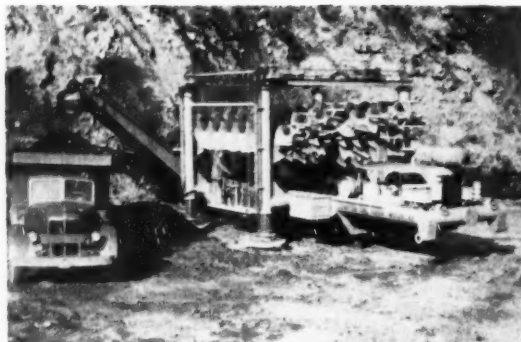
Kloeckner, formerly district sales manager for the Fan Division of Robbins & Myers, Inc., Memphis,



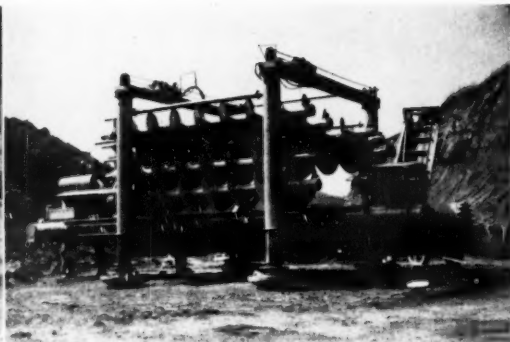
Robert P. Kloeckner

Tennessee, will handle distribution and sales of the Fageol Heat Machine in Illinois, Wisconsin and Minnesota. His headquarters will be in Chicago.

Kloeckner's experience also includes service with the Mueller Brass Company and the Crane Company. He attended Wright Junior College, Chicago.



The Compton Coal Auger from the loading side.



Looking at the Compton Coal Auger from the right front side, showing the cutting head

## New Strip Mine High Wall Coal Auger

The new Compton Model 42 strip mine highwall coal auger is designed for coal ranging from 28 inches to 48 inches in thickness. This auger can drill up to 189 foot holes and can produce up to 500 tons of coal per shift. Following specifications give other pertinent details:

### Frame:

Dimensions: Length—42½ feet. (15 feet center to center pontoons). Width—20 feet approx. Height—14½ feet approx.

### Material:

All frame members 16" O.D. tubing.

### Operating Carriage:

Engine—225 H.P. (1800 R.P.M.) CUMMINS Diesel, Model NHRS-600.

Fluid Coupling — TWIN-DISC Marine Reverse Gear MG200-17-LH.

Transmission — COTTA, Model GGR (Ratio dependent on auger diameter).

Feed Mechanism — Power take-off from 225 H.P. CUMMINS Diesel, driving VICKERS Hydraulic Variable Pump, No. PV-2012-FDEAB and Oil Motor, No. MF-2020-30-95-10; all VICKERS relief valves, filters, and controls. Using cable-drive assembly for final feed drive.

### Auxiliary Power Unit:

Engine — 54 H.P. (1800 R.P.M.) HERCULES Gasoline Engine, Model QXC5.

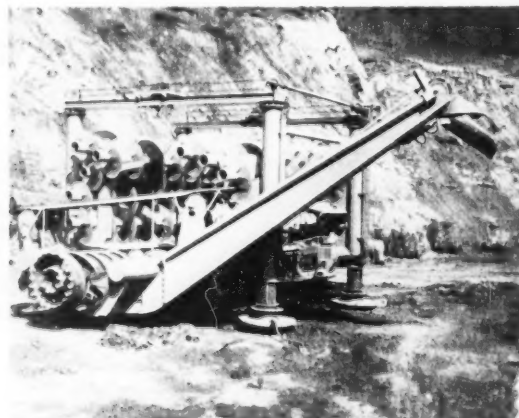
Operating — 1. Overhead hydraulic TULSA winches.

2. Drag Flight Conveyor (Direct drive through reduction). Width 30"; Speed 200 f.p.m., approx.; Discharge Height 12 feet. Hydraulically turret discharge chute. LINK-BELT reduction gears, drive chains, sprockets and bearings.

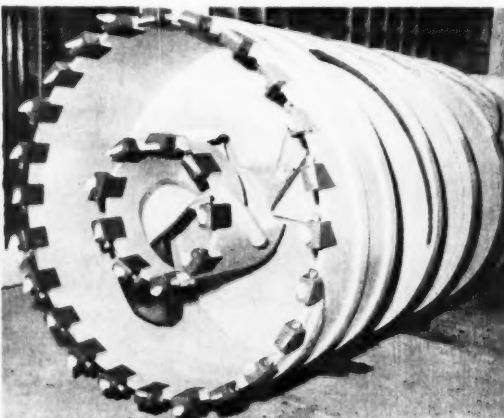
3. Jack-leg hydraulic cylinders. Standard lift 66" (higher lifts available). Piston diameter 8" avg. Capacity 25T @ 1000 p.s.i. each. Leveling, manual hydraulic. Mounted into 48" dia. swiveling, deep-dished pontoons.

4. Pilto Pan — Double Acting. Travel 24". Pistons—2—3½" hydraulic. Purpose — Guides auger and eliminates spillage at front of machine.

(Continued on Page 47)

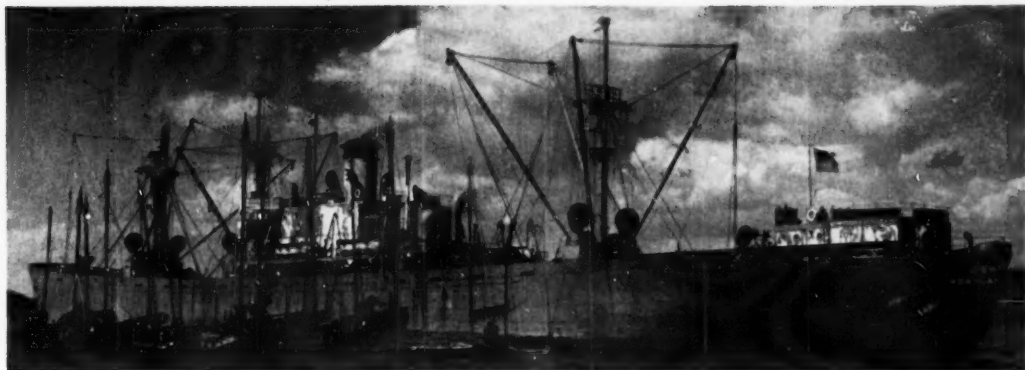


This is the front left side, showing the cutting head and loading conveyor.



This is one of the several types of cutter heads used.





American Coal is Loaded Onto Boats at Portland, Oregon.

## Coal Comes to Korea

WITH THE EIGHTH U. S. ARMY IN KOREA—The unloading of coal at the 21st Transportation Medium Port in Korea is the story of modern ships, back-breaking labor and work methods handed down through the ten thousand years of Korean history.

While the coal ships are unloaded by the most modern winches and slings, from there on out every ounce of coal is carried on the backs of men. Like a hive of bees, Korean laborers swarm over the native sailing craft loaded to the gunwales with coal and transfer the cargo to stockpiles on shore.

Each man carries an average of four to five tons a day, making about 80 trips from barge to shore. It's a hard climb with 150 pounds of an A-frame on his back and the hours are long. According to the contract with the Korean contractor and the labor union, the rate of pay corresponds to the Korean labor standard.

The 150 laborers used during the summer months unload about 1,000 tons per day from the barges and load 700 tons into railroad cars. In winter, 250 laborers double these totals.

The operation is supervised by

one U. S. Army officer, 1st Lt. Orton L. Johnson of Mt. Horeb, Wisconsin, and two enlisted men, Pfc. Thomas E. Randolph of Jefferson, Ohio, and Pfc. Edward J. Cameron, Jr. of Ft. Wayne, Indiana. They are assisted by two interpreters and three "honchos" (foremen).

The coaling point of the 21st Transportation Medium Port is a completely self-contained operation. The three Americans handle all the paper work, account for every pound of coal and supervise every detail of the work.

(Continued on Page 47)



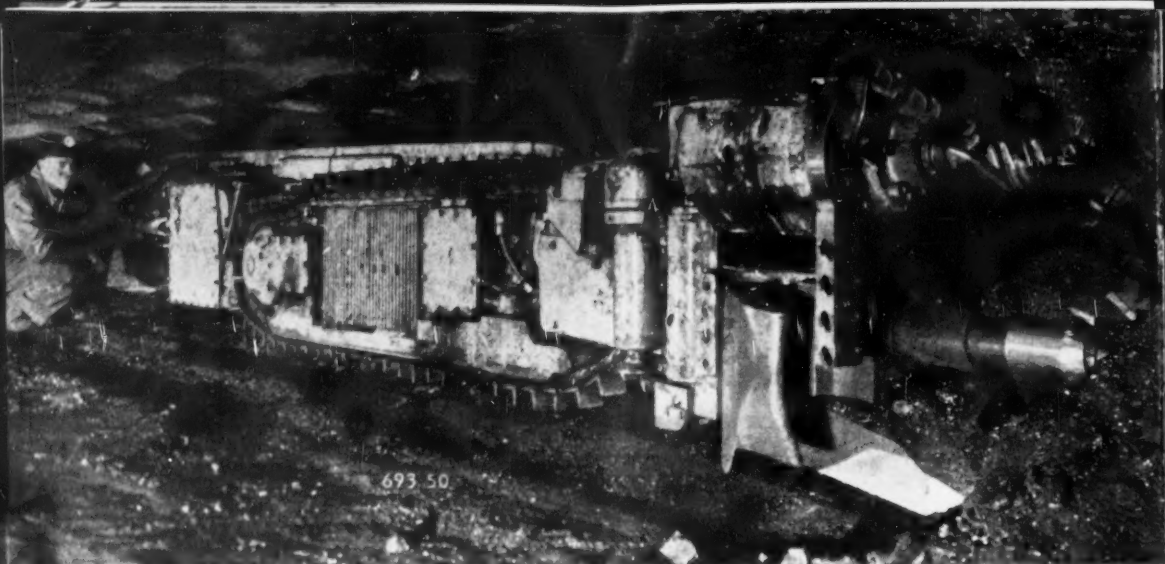
The coal is unloaded on shore in A-frames on the backs of Korean laborers. Each load weighs about 150 pounds and an average of 80 trips are made by each man each day.

(U. S. ARMY PHOTO)



An average of 19 cars of coal are loaded each day at the 21st Transportation Medium Port. In winter, the total jumps to an average of 40 cars, or about 1,250 tons . . . all carried in A-frames.

(U. S. ARMY PHOTO)



Overall view of the Jeffrey "Colmole" continuous Mining Machine. Photo Courtesy Jeffrey Mfg. Co.

## Extensive Opportunities for Engineers in the Coal Industry

The engineering research and development that have given this nation the world's most productive coal industry must be continued and intensified if fuel demand is to be satisfied in the future, a Member of Congress who is also a coal operator writes in the August issue of the *AMERICAN ENGINEER*, published today. The author of the article, "The Engineer — Key to Coal Progress," is Rep. Augustine B. Kelley, who for many years has been in the coal business in his native Westmoreland County, Pa.

The *AMERICAN ENGINEER* is published monthly by the National Society of Professional Engineers and is distributed throughout the United States as well as many foreign countries.

Pointing out that coal will be required to assume more of the work now consigned to natural gas and oil as reserves of those fuels are depleted, Congressman Kelley cites estimates of an annual coal requirement of one billion tons in this country by 1975. He explains how the bituminous coal industry has mechanized its operations, declaring that "this amazingly efficient pro-

ductive system has been wrought by the genius of engineering talent and put to practical use by farsighted management and a working force of skilled technicians."

Further application of engineering research and development will be required to handle the flow of coal of "continuous mining machines," according to the Pennsylvania Congressman, who quotes sponsors' claim that the machines can conceivably raise productivity to about 14 times today's record output of seven tons per man-day. But this potential capacity is predicated on the solution of other problems by the engineering profession, Mr. Kelley notes, adding:

"Thus in creating a new mechanical monster that can revolutionize the world's foremost mining system, the engineer has concomitantly produced other technical complications which he alone can solve."

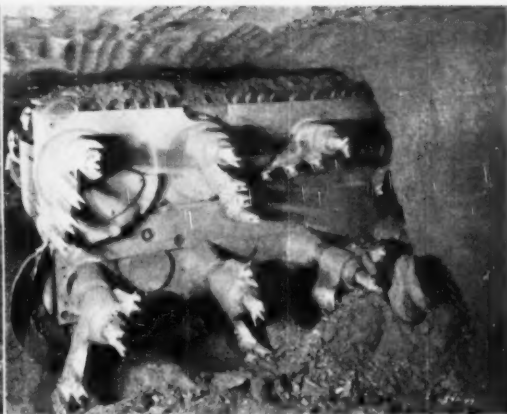
The article reviews how coal's quality has been improved through the development of "another symbol of engineering achievement," the preparation plant, where the product is cleaned and sized to consumer specifications. Through this

process and consequent improvement in boiler equipment and firing techniques by combustion engineers, the article continues, efficiency of coal has increased to a point where, in the case of the electric utilities industry, one pound goes as far in the generation of power as three pounds did thirty years ago.

There are "unlimited opportunities" for members of the engineering profession in the field of coal utilization, Mr. Kelley declares, particularly in the synthetic fuels and coal chemicals industries. He also calls attention to the coal industry's program designed to provide relief from high freight rates, either by developing pipelines through which coal can be pumped over long and short distances, or by the successful culmination of present projects that would permit operation of electric power plants at sources of coal supply without regard to water supply. In the latter event, according to the Congressman, coal's energy would then be transmitted by wire from the mine mouth.



Sideview showing how the Colmole chews into solid coal



Head on view of head of the Colmole

After further exploring the opportunities for engineers in coal and allied industries, Congressman Kelley concludes his article in the *AMERICAN ENGINEER* with this statement:

"The coal industry is one of the most progressive of all industries,

both from the standpoint of the mine operator and the mine worker. The producers of bituminous coal are constantly investing in research and development, and mine organizations welcome new machines and new techniques that tend to increase productivity. Under such

conditions, and with the increasing dependence that the nation will place upon bituminous coal in the coming years, it is obvious why the young graduate in mining engineering who joins the coal industry can look to the future with confidence and enthusiasm."

Addition to the Fageol Heat Machine line of a new 168,000 b. t. u. unit with an adjustable vent for permanent installation or portable on-the-job use, is announced by the Fageol Heat Machine Company, Detroit.

Known as the Fageol Model VO-168, the new machine operates on the exclusive Fageol counterflow principle of spraying heated air out across floor areas to form a 6-foot-high blanket of warmth in the work zone. According to the manufacturer, this principle of heating from the floor up avoids wasting heat in unused, overhead areas. Fageol Heat Machines are said to heat men at work, not empty spaces.

When used with a flue and vented outside, Model VO-168 is recommended for permanent use in confined areas such as small plants, garages, offices, warehouses, gas stations, foundries, barns, stores, barracks, trailers. Heat output vented is 130,000 b. t. u. per hour. When used without a flue, free heat is directed back into the blower and discharged "superheated," increasing output to 168,000 b. t. u. per hour. Unvented, the new Fageol Heat Machine is recommended for on-the-job use in construction work, in large drafty buildings, on loading

Scientists are hurrying to unravel fully one of the last great mysteries with which nature has baffled man—photosynthesis. At stake is not only the synthetic production of food but the understanding of life itself. Living plants take in carbon dioxide from the air, water and minerals from the earth and light from the sun. By making a plant breathe radioactive carbon dioxide two young scientists have traced each chemical compound the plant formed.

docks. Equipped with wheels for easy portability, it can also be used for deicing wheels and transmissions, drying plaster, paint and concrete, curing tobacco, drying fabrics and rugs, drying corn, hay, beans and other agricultural products.

Model VO-168 operates from a detached fuel supply, burning No. 1 or No. 2 fuel oil, kerosene or diesel oil. A 10-gallon fuel tank may be attached to the unit as optional equipment. Dimensions of the machine are 21" x 33" x 69". Weight is 345 pounds. Burner is UL-approved gun type, pressure atomizing. The machine can be started or stopped by simply snapping a switch.

Write for Bulletin L-5391, Fageol Heat Machine Company, 5725 Mt. Elliott Ave., Detroit 11, Michigan.

Appointment of J. I. Gaisford as sales representative for the Fageol Heat Machine Company, Detroit, is announced by R. H. Randolph, general sales manager.

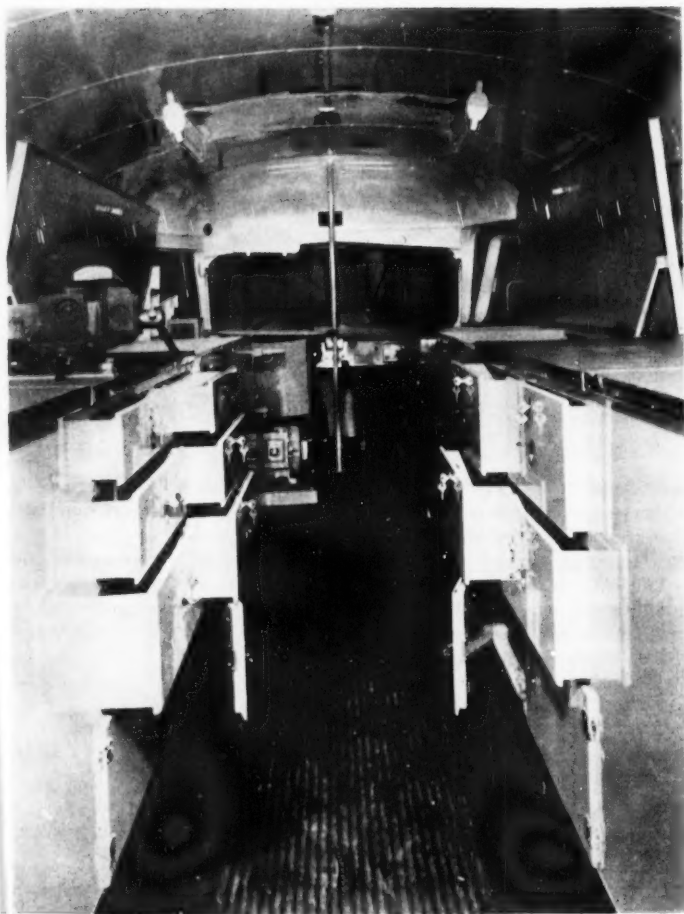
Gaisford, formerly with Oakland Chemical Company, Pontiac, Michigan, will handle distribution and sales of the Fageol Heat Machine in Michigan, Indiana and western Ohio. His headquarters will be in Huntington, Indiana.

A veteran of 25 years' experience in the industrial sales field, Gaisford is a graduate of Illinois State Normal University, Normal, Illinois.

• New HUM-I-DRY Moisture Absorbent replacement units are announced by Speco, Inc., Cleveland.

Packaged in polyethylene outer bags, the new inner replacement bags fit HUM-I-DRY 5 and 10-pound units as well as standard chemical dehumidifiers. According to the manufacturer, HUM-I-DRY absorbent up to ten times its weight in moisture, 20% more than ASTM standard flake calcium chloride.

Write for information to Speco, Inc., 7308 Associate Avenue, Cleveland 9, Ohio.



• Four "safety stations on wheels," ready to roll at an instant's notice, now spearhead the mine rescue organization of the State of Illinois. The Illinois Department of Mines and Minerals has just added its fourth such unit—equipped with every emergency device and life-saving instrument that might be needed—and located it at a strategic point in the mining area where trained men maintain a 24-hour vigil.

These units are in addition to the safety and rescue equipment permanently located in mining communities.

Three of the mobile units were obtained shortly after World War II, when the necessary equipment again became available.

The "MSA Mobile Safety Stations" are designed to serve five purposes.

5. **Emergency hospital and ambulance.** Extensive first aid equipment, inhalators, and stretchers are carried.

The Mobile Safety Station has a roomy school bus-type body on rugged, heavy-duty truck chassis. Flashers, sirens and over-size heaters are standard equipment.

MSA Mobile Safety Stations were developed by the Mine Safety Appliances Company, Pittsburgh 8, Pa., which has pioneered the development of safety equipment for mining and industrial safety.

• A 4-page bulletin describing Monco-Alochron aluminum-chromium paint is announced by The Monroe Company, Inc., Cleveland.

Printed in aluminum and black and illustrated with photographs and line sketches, the new bulletin states that Monco-Alochrom is available in several grades which are adaptable to all surfaces whether interior or exterior, hot or cold. It explains how the unique formula of oil and aluminum-chromium flakes in Monco-Alochrom gives extra protection from moisture and industrial fumes by forming a base coat of oil and a top coat of overlapping aluminum-chromium flakes. The resulting watertight seal is said to be impervious to rust and corrosion.

Individual grades of Monco-Alochrom and detailed application data are listed on the back page of Bulletin C-54-8.

Write for copies to The Monroe Company, Inc., 10703 Quebec Avenue, Cleveland 6, Ohio.

• A new product information bulletin describing CHEM-REM chemical resistant paint is announced by Speco, Inc., Cleveland.

The bulletin states that CHEM-REM is an acid and alkali-resisting paint which can be used on metal, wood or masonry surfaces, indoors or out. Applied by either brush or spray, it dries to a hard, glossy black finish.

CHEM-REM'S chemical-resisting properties are listed in the new bulletin, as well as application and coverage data. Various uses for the paint are also described.

Write for Bulletin 51522 to Speco, Inc., 7308 Associate Avenue, Cleveland 9, Ohio.

1. The serve as **Mobile rescue stations**, always alert and equipped to rush to the scene of a mine disaster anywhere in the state. They carry complete equipment to outfit two six-man rescue teams. Their equipment includes McCaa two-hour oxygen breathing apparatus, gas masks, protective hats, and Eidson electric miners' cap lamps.

2. A **maintenance shop** carrying tools for repairing all its equipment, as well as a battery charger for the electric cap lamps and an oxygen pump for filling oxygen cylinders.

3. A **roving classroom** in which is taught first aid and mine rescue technique. The truck is well lighted with fluorescent as well as ordinary lighting.

4. A **portable laboratory** for the testing of mine air, rock dust samples, and safety lamps.



**HIGHWALL AUGER**

(Continued From Page 42)

Shaft — 8" O.D. x  $\frac{3}{8}$ " wall, cold-drawn mechanical tubing.

Flights — 30" pitch, errated and gusseted.

Bearing Supports — Tripod with skids. Bearings — doubly opposed TIMKEN tapered rolled bearings. Couplings — Hexagonal with spring-fed latch pins.

**Cutter Head:** High Speed Type. Length 7 feet. Flights — Double flight — 30" pitch. Diameters — 28"-48". Bits — Tungsten carbide, KENAMETAL.

**Weight (approximate)** Frame and Conveyor 33,000 lbs. Operating Carriage (225 H.P. Engine) 13,500 lbs. Augers, 42" diam., 1889 lbs. each x 9 sections 17,000 lbs. Cutter head, 42" diam. 2,500 lbs. Total weight 66,000 lbs.

**COAL COMES TO KOREA**

(Continued From Page 42)

The results of their work are told in the continuing operation of power plants and generators and locomotives over the major portion of the Korean peninsula. Their work is another example of performance of duty where little recognition is received and none is expected. Without the successful operation of the coaling point, much of Korea's industry and transport would grind to a standstill.

A little-known job, but one of immeasurable importance. Coal from the mines of the United States comes to the aid of the Korean people and furnishes power and transport to the vital industries and cargos needed to halt the tide of aggression in the Far East.

• A new application bulletin containing information on the selection and use of anti-rust paints for all metal surfaces is announced by Paint Corporation of America, Cleveland.

The new bulletin, No. L-4285, contains a description of the chemical properties of anti-rust paints and discusses the various methods of applying these paints in industrial, farm, home and marine uses. It also explains how and when to use colored finish paints over anti-rust paints.

For copies, write Paint Corporation of America, Fidelity Building, Cleveland 14, Ohio.

• A new line of single axle packaged trailer dumps of up to 20 cubic yd. capacity is announced by The Galion Allsteel Body Company, Galion, Ohio.

Known as Galion Model 12, the body is constructed of 10 gauge steel. It is 88 inches wide inside and has 32 inch sides and 44 inch ends. Standard equipment includes 12 inch steel removable side boards. Length can be varied up to 18 ft. to provide any desired yardage capacity.

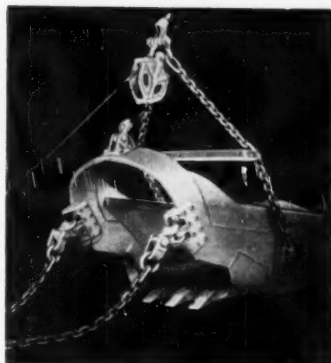


Dumping is handled by a Galion Model 77142 Hoist. This consists of two 7 inch twin ram single stage telescopic cylinders. Rated hoist capacity is 18 tons.

The trailer suspension is of heavy duty alloy main and auxiliary springs, one fixed and one adjustable radius rod, with flat top frame section. It is furnished with either a power fifth wheel or wet hose mounting. Tire sizes and brakes are available in several options to meet individual load and service requirements.

This is one of the complete line of trailer bodies and hydraulic hoists manufactured by The Galion Allsteel Body Co.

• Two new electric strippers recently installed by Southern Strip Mining Company in New South Wales are at work in the firm's mines near Kerosene Vale. One is equipped with 175 ft. boom and 12 cubic yard bucket. The other electric unit is a Marion 151-M shovel carrying a 6-yard dipper. It is taking out the first box cut on the lower seam at Kerosene Vale, loading a Euclid truck. These units were recently put into service through Perkins (Aust.) Pty. Limited, Marion distributor in Australia with main offices in Sydney.



Page  
Improved  
Automatic  
Dragline  
Buckets

\* \*

Repairs for ALL Page  
Dragline Buckets

\* \*

**McCLURE  
EQUIPMENT CO.**

3045 Jenkins Arcade  
Pittsburgh 22, Pa.

PHONE: COurt 1-5225

**SALEM "HERCULES" AUGERS FOR ELECTRIC DRILLS**

Made To Withstand High Drilling Speed, Whip And Torsional Strain Of Electric Drills



Drills holes faster—Will not snap off shank or chip points—Outlasts four or five ordinary augers.

**THE SALEM TOOL COMPANY****SALEM, OHIO, U.S.A.**

IT PAYS TO ADVERTISE IN "COAL MINING"

**BUILD UP****WELDING and HARD FACING**

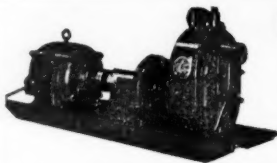
Mine Car Wheels - Idler Wheels - Track  
Rollers - Sheaves and Almost Any  
Wearing Part

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CEDAR 1-4357

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**MARLOW  
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Complete Line Carried in Pittsburgh Stock. Tel. HU 1-4400

**HARRIS**

PUMP AND SUPPLY COMPANY

Brady &amp; Sidney Sts.

Pittsburgh 3, Pa.

• Production of special side panels for use with the Model PW-189 Fageol Heat Machine to permit its operation with warm air ducts is announced by the Fageol Heat Machine Co., Detroit.

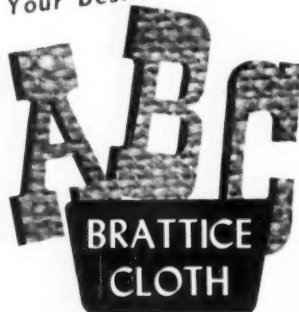
These adapter panels are made of heavy sheet steel with flanged openings for duct attachment and can be installed in a few moments' time, according to the manufacturer.

Addition of warm air ducts permits the use of Heat Machines in a great number of applications

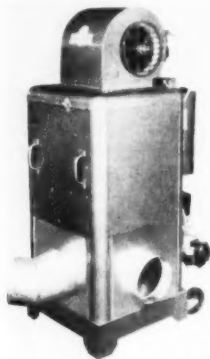
**NOTE!**

Be sure to investigate the long wearing features of ABC Brattice Cloth before you decide. Comparison tests prove ABC Brattice IS Your Best Brattice Cloth Buy.

Your Best Brattice Buy



AMERICAN BRATTICE CLOTH CORP.  
180 S. Buffalo St. Warsaw, Indiana



where concentration of intense heat on one spot or transfer of heat for substantial distances is required the company states. Special applications include heating freight cars, truck cabs, construction machinery, drying agricultural products, heating buildings, thawing pipes and frozen ground, etc.

Write for information to Fageol Heat Machine Co., 5725 Mt. Elliott Avenue, Detroit 11, Michigan.

**QUONSETS****ALL STEEL  
QUONSET  
BUILDINGS****BIG REDUCTION  
IN PRICES****IMMEDIATE  
DELIVERY****BOOR, INC.**

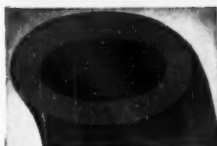
CARNEGIE, PA.

MANUFACTURED BY GREAT LAKES STEEL CORP.

Phone Carnegie 3030

# The Stamina Story

## of ESCO Dragline Buckets



**HOLLOW ARCH CONSTRUCTION**  
eliminates excess weight and increases strength. Used on all ESCO buckets over 1/2 yard. Cast T section arch used on smaller sizes.



**6-YARD ESCO HEAVY DUTY (STANDARD) DRAGLINE BUCKET.** Other dragline sizes and types, plus full line of dippers, provides a bucket for every digging job.



**LONG BOWL ROPE SOCKET.** Light weight; strong—develops more than 90% of rated cable strength; equal wedging action on all six strands; eliminates crushing and distortion of wire rope.



**CLEAN CUTTING LIP** decreases digging resistance. Tooth holders cast integrally with cutting lip.



**VERTICAL PIN HITCH PLATES.** Standard equipment on 5 1/2 yd. sizes or larger. Optional on others.



**TRUNNION BRACKETS,** links and pins of manganese steel. Alternate holes for adjusting of digging and carrying positions.



**RUNNERS AND CORNER WEARING SHOES** of manganese steel take bottom wear. Easily replaced on the job.

# ESCO

**DRAGLINE, DIPPER AND  
HOE DIPPER BUCKETS**

**ELECTRIC STEEL FOUNDRY**

Write for literature. Catalogs of ESCO dragline and dipper buckets which give detailed information about sizes, weights, dimensions, etc., are yours for the asking. Ask your nearest ESCO representative for catalog 188 for dragline buckets; catalog 189 for dippers.

**DISTRIBUTED BY**

## KANAWHA STEEL & EQUIPMENT CO.

**Home Office**

Corner Young and Welch Streets  
Charleston, West Virginia, Phone 33-615  
Mailing Address: P. O. Box 2361

**Branch Office**

24th Street and U. S. Route 22  
Weirton, West Virginia, Phone 3344  
Mailing Address: P. O. Box 687

• In keeping with its policy of giving the best service possible to its customers in the coal industry, the Kanawha Steel and Equipment Co. has opened a branch office and warehouse at Weirton, W. Va. The phone number is 3344, the address is 24th Street and Route 22.

The simplest and perhaps the basic habit in getting more things done with less effort is through the organization of your work.

• A new high-speed Diesel engine is in production, according to an announcement by Caterpillar Tractor Co. Designated the Cat D326, this engine is offered in industrial, electric set and marine arrangements, as follows:

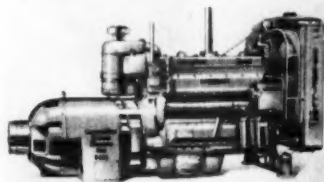
1. D326 Industrial Engine—intermittent output rating of 170 horsepower at 2,000 rpm; weight, approximately 3,650 lbs.

2. D326 Electric Set 12-hour rated output of 80 KW; set available as a 50-cycle unit, with a 60-cycle unit anticipated at a future date.

3. D326 Marine Engine — on 24-

hour, continuous duty, produces 118 horsepower at 1,600 rpm.

The basic D326 Engine is six-cylinder and has a 5 $\frac{1}{2}$ -inch bore and 6-inch stroke. Its announcement follows last year's introduction of the Cat D337, similar in

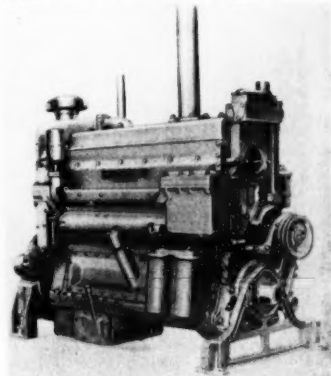


ways but built for a higher horsepower output.

With the engines came new developments in the Caterpillar fuel injection system of individual pumps and valves. The pumps are mounted directly adjacent to the cylinders they serve, and the fuel lines made short and identical. These pumps, as well as the intake and exhaust valves, are actuated by a single camshaft.

Both engines include special heat

resisting metal inserts in the tops of pistons and the valve seats. Main and connecting rod bearings are precision-type, of steel-backed aluminum with high fatigue resist-



ance. Piston cooling is by means of oil jets from under-mounted nozzles.

Complete information is available from the local Caterpillar Dealer or Caterpillar Tractor Co., Peoria 8, Ill.

## PROMPT SERVICE

on repair and replacement parts  
for your

## MINING EQUIPMENT!

Our completely integrated foundry, machine and fabricating shops are your assurance of quick, efficient service.

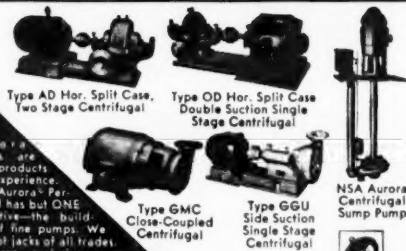
### FORT PITT Mining Equipment NEW • REPAIRS • PARTS

We manufacture: Hoists - skips - cages - coal, slate and rock larries - rotary dumps - conveyors - coke oven and tippie equipment.

**Connellsville Manufacturing and  
Mine Supply Company**  
CONNELLVILLE PENNSYLVANIA  
*Serving the Mining Industry Since 1901*

SAY YOU SAW IT IN COAL MINING

## You Can Say It With PRIDE "IT'S AN AURORA PUMP"



Aurora Pumps are the products of Experience. The Aurora Personnel has but ONE objective—the building of fine pumps. We are not jacks of all trades. We are exclusive pump builders. The splendid record of thousands of Aurora Pumps on a myriad of war services is your assurance that your post-war needs will be superbly taken care of as you, too, install "Pumps by Aurora."

Write for  
CONDENSED CAT-  
ALOG M

APCO TURBINE-  
TYPE PUMPS—the  
simplest of all pumps. Ideal for  
small capacity, high head duties.  
Silent, compact and lasting.



PUMPS — MACHINERY — SHOP EQUIPMENT



# Tranter

MANUFACTURING COMPANY

105 WATER STREET • PITTSBURGH 22, PA. • COURT 1-0600



• Beckwith Machinery Company, "Caterpillar" distributor with headquarters in Pittsburgh, Pa., announces the opening of a new parts, sales and service branch at 1356 East 12th St., Erie, Pa., under the managership of Mr. Walter R. Fowler.

This is the sixth location for Beckwith Machinery Company, which serves Western Pennsylvania, parts of Ohio and West Virginia with construction, earthmoving and farm machinery.



Walter R. Fowler

The Erie branch will not only act as a sales information center but is stocking thousands of dollars worth of parts for the lines handled by Beckwith. Shop repair and overhaul work are available while field service by factory-trained mechanics will also originate from the same address.

Mr. Walter R. Fowler, Erie Branch Manager, joined Beckwith Machinery Company in June, 1949 and has served as sales representative in Erie territory for the past three years. He is a graduate of the Pennsylvania State College and was previously affiliated with the Walsh Auto Transport of Cleveland, Ohio and with Compressed Gases of DuBois, Pa.

Mr. Roco Dezi, previously with the parts department of Beckwith Machinery Company at Pittsburgh, Pa., has been appointed to the sales territory in the Erie region previously covered by Mr. Fowler.

Beckwith Machinery Company is distributor for Caterpillar Diesel Tractors, engines, motor graders, earthmoving equipment; Hyster winches and cranes; Traxcavator shovels, Trackson pipelayers; Bucyrus-Erie cranes, draglines, shovels, and spudders; Chicago Pneumatic compressors and air tools; Athey wagons, Mobiloaders, force-feed loaders; Martin trailers; Broderick & Bascom wire rope; and McKiernan-Terry pile hammers and extractors.

## MANGANESE

CASTINGS AND SHAPES OF ALL TYPES

Shovel Teeth, Crusher Parts, Shaker Screens, Flats, Rounds, Plates, Welding Rod, Wedge Bars, Repointer Caps, Grouser Bars, Chain, Repair Links.

**Geo. L. Wilson & Co.**

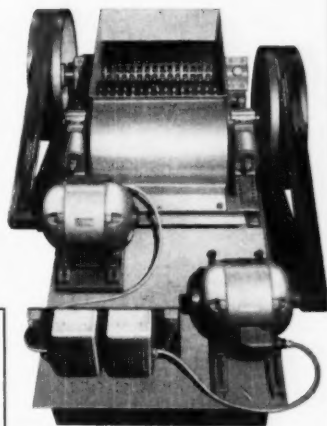
Office & Warehouse • 310 Mendota St. • Pittsburgh 12, Pa. • CEDAR 1-7710

IT PAYS TO ADVERTISE IN COAL MINING

## Less POWER CONSUMPTION

with

### SCOTSDALE double-roll COAL CRUSHERS



NO. 63 SPECIAL — 2 MOTOR  
DRIVE—PRODUCES A PRODUCT  
3/4" to 8". EQUIPPED WITH TWO  
GROOVED FLYWHEELS  
(NO GEARS)

Through an efficient shredding action by toothed double rolls, assembled in a staggered position, Scottsdale crushers use LESS power than conventional-type crushers. A more uniform and consistent coal product is produced . . . fines are kept to a minimum. Other features are: Forged Steel toothed gears; welded steel base; bronze bushed journal bearings; welded steel hopper; grooved flywheels.

BUY SCOTSDALE! SEND FOR DATA AND PRICES

**SCOTSDALE MACHINE, FOUNDRY & CONSTRUCTION CO.**

DEPT. MC

BOX 51

SCOTSDALE, PA.

# STOP RUST



## ANTI-RUST PAINTS



PCA-100  
Black



PCA-101  
Clear



PCA-102  
Aluminum

### PAINT RIGHT OVER RUST...

no wire brushing, sandblasting, scraping.  
Can be applied on damp surfaces.  
Sold by leading industrial distributors  
everywhere.

A-5993

Write for  
Bulletin  
L-4285

Other colors on special order

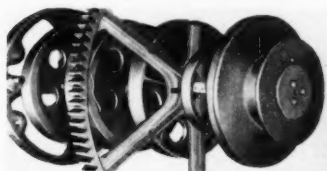


**PAINT CORPORATION OF AMERICA**

GENERAL OFFICES—  
FIDELITY BUILDING, CLEVELAND, OHIO

• The OSGOOD Company, Marion, Ohio, announces the development of a magnetic tagline for use on clam-shell or electro-magnet services.

This new type tagline consists of a drum, mounted on the extension of the moisting drum shaft, which is provided with a series of "permanent" magnets. By their magnetic attraction to the flange of the tagline drum, a constant pull is exerted on the tagline rope. Different "pulls" can be obtained by varying the number of magnets ... on the job.



Important features are its permanency ... it requires no adjustment ... and no maintenance. It is a definite improvement over track type taglines, or one requiring clutches, springs, and other parts.

For further information, on the OSGOOD Magnetic Tagline, write The OSGOOD Company, Marion, Ohio, or contact our nearest Distributor.

1. Bay City Shovel No. 65—1 $\frac{1}{4}$  yd. Eng., high front, wide cats. New and 1 $\frac{1}{2}$  yd. Coal Bucket, Diesel in 1948.
2. GMC—75 Kw Diesel Generator and Boards.
3. Conveyor 39" wide—70 long. Low flight complete with 30 hp and starter.
4. Haiss Cat type loader, 1949 model.
5. International 18 A-TD Dozer, 1950 Model. TD 14 A Dozer, angle blade. TD 6 Dozer, angle blade. Cletrack Dozer, angle blade.
6. 11 BU Joy Loader and 10 PU Rubber Tired Cutter, 1948 Models. B. Locomotives.
7. Joy T1 and T2 Cat Trucks—CP 574 Drills.
8. Goodman Shortwalls and 512 Trucks. Bargain.
9. Joy 8 BU, Myers-Wholey Loaders
10. Iron-ton 5 $\frac{1}{2}$  ton Battery Locomotive with Batteries and Charger. Price \$2200.00.
11. STEELTITE COMPOUND to water spray systems for Coal Dust Control. Effective - Efficient - Low Moisture - Cool.

### T. L. (Les) Simpson

1200 Woodbourne Ave.  
Pittsburgh 26, Pa.

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**HYDRAULIC**

**hand-operated**

**SCHROEDER**

*Coal Drill*

*Light!*



*Fast!*

**Safe!**

Powered from the hydraulic power system of standard mining equipment, the Schroeder 12-B Coal Drill provides plenty of power for fast drilling with complete operational safety—never any spark, kick, or shock—all electrical hazards are removed yards from the drill! Lightweight and dependable, its design simplicity and minimum of parts result in greatly reduced maintenance costs.

Write or call for details and demonstration.

3116 Penn Ave.  
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**SCHROEDER BROTHERS**

HYDRAULIC, ELECTRIC & PNEUMATIC MINING EQUIPMENT

EXpress  
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## Operating Supplies From Altoona Stock

- Manganese Steel Castings
- Shovel Dippers—Teeth—Treads
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Electrode—Bars—Plate
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20 years of service to the Mining and  
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## MAXIMON MACHINE CO.

MATERIAL HANDLING EQUIPMENT  
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Altoona, Pa.



## McDEVITT'S RADIATOR SERVICE

### *New Cores in Stock*

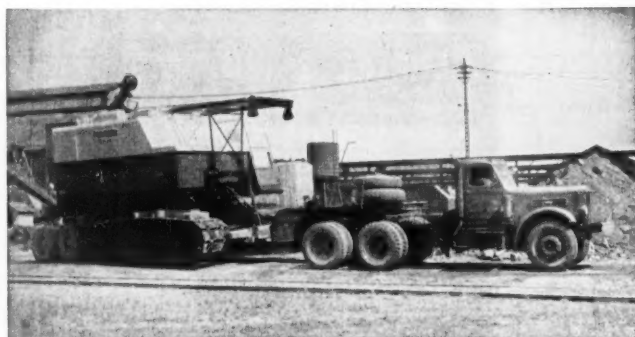
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## MOVERS of Coal Stripping and Contractor's Equipment



## HEAVY HAULING RIGGING

## MOORE-FLESHER HAULING CO.

MOVERS of Coal Stripping and Contractor's Equipment

### TWO LOCATIONS

Preble & Adams Sts., North Side, Pittsburgh 12, Pa.

Phone ALlegheny 1-3600

and

Stoney Hollow Boulevard, Steubenville, Ohio, P. O. Box 547

• Appointment of N. R. Aldrich as sales representative for the Fageol Heat Machine Company, Detroit, is announced by R. H. Randolph, general sales manager.

Aldrich, formerly sales manager for the Continental Manufacturing Co., Inc., Harrisonville, Missouri, will handle distribution and sales of the Fageol Heat Machine in Missouri, Kansas, Iowa, and Nebraska. His headquarters will be in Sheridan, Missouri.

A graduate of Maryville, Mo., State College, Aldrich's experience also includes service with Keystone Trailer and Equipment Co., Kansas City, Mo., Dohner and Lippincott, New York, N. Y., and Douglas T. Sterling Co., Stamford, Conn. He is a member of the Missouri Society of Professional Engineers.

• A 28-page booklet in color, describing and picturing the Le-Tourneau Tournarocker, a modern rear-dump designed as a unit for off-road and highway hauling of dirt, rock and ore, has just been issued by R. G. LeTourneau, Inc.

Action shots and cut-out photos of integral parts of the machine illustrate how and why it hauls anywhere, cuts weather delays, reduces maintenance, speeds loading and saves spotting time.

Its fingertip electric control system, 90° turning ability, instant shift transmission and torque converter, and big tire features are colorfully illustrated in numerous photos and diagrams.

Those interested in this tool, which is built in 9-, 18- and 35- or 50-ton custom-built capacities, may obtain this booklet by requesting Tournarocker Bulletin TK-137 from Advertising Department, R. G. LeTourneau, Inc., Peoria, Ill. It will be sent without charge.

**Tell them you saw it in  
COAL MINING**



• Farmers Engineering and Manufacturing Company has announced the appointment of John M. Appel as general manager.

With headquarters in Pittsburgh, Mr. Appel will conduct an expanded national sales program for "Femco" products. These include the Femco Trolleyphone, Femco Audiophone and other electronic communication systems for mines and mills.

Formerly for 17 years with Pittsburgh Plate Glass Company as glass manager of the Pittsburgh branch, Mr. Appel brings a rich background of sales management to the Femco firm. A native of Pittsburgh, he attended Knoxville Union High School, Carnegie Institute of Technology and Washington and Jefferson College.

During the war he served as Lieutenant in the U. S. Navy for 3 years in communications. For the Navy he attended Harvard Communications School and served in the Pacific theatre both at sea and on shore.

Married, with 3 children, John M. Appel lives at Mt. Lebanon.

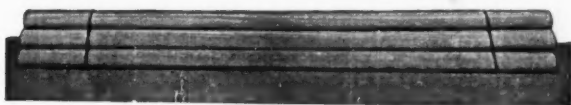
## MEYER BROS. Co.

Philipsburg, Penna.

THE FOLLOWING UNITS ARE ALL IN STOCK IN  
PHILIPSBURG AT SPECIAL PRICES FOR RESALE:

### Gasoline and Diesel Engine Generator Units

- 2—112 KVA 90 KW AC 2400 Volts 3 Phase Caterpillar D17000 Diesel Electric Sets.
- 1—106 KVA 85 KW AC 220/440 Volts 3 Phase Caterpillar D17000 Diesel Electric Set.
- 1—92.5 KVA 75 KW AC 220/440 Volts 3 Phase Caterpillar D13000 Diesel Electric Set.
- 1—50 KVA 40 KW AC 220 Volt 3 Phase Buda Diesel Electric Set.
- 3—100 KW DC 250 Volt Buda Diesel Generator Sets.
- 1—30 KW 125 Volt DC Buda Diesel Generator Set.
- 1—25 KW 250/125 Volt DC Ideal Gasoline Generator Set.
- 1—25 KW 125 Volt DC Cummins Diesel Generator Set.
- 1—25 KW 220 Volt 3 Phase LeRoi-Westinghouse Gasoline Generator Set.
- 1—20 KW 125 Volt DC Hill Diesel Generator Set.
- 1—15 KW 18.75 KVA AC 220 Volt 3 Phase International Gasoline Generator Set.
- 1—10 KW 120 Volt DC Hercules Gasoline Generator Set.
- 3—5 KW 115 Volt DC LeRoi Gasoline Generator Sets.
- 3—5 KW 115 Volt DC Kohler Gasoline Generator Sets.

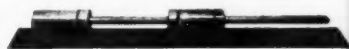


### WOOD TAMPING POLES

For Tamping Explosive Shots: Poles are round made of Hardwood. Sizes to 10 ft. long.

1" Dia.	8¢ per lineal ft.
1 1/4" Dia.	12¢ per lineal ft.
1 1/2" Dia.	14¢ per lineal ft.
1 3/4" Dia.	16¢ per lineal ft.
1 1/2" Dia.	18¢ per lineal ft.
1 3/4" Dia.	20¢ per lineal ft.
2" Dia.	32¢ per lineal ft.

Special diameters and lengths can be furnished. These Poles meet the requirements of the New Federal Mine Safety Code.

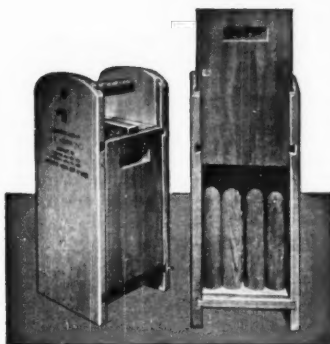


### SECTIONAL TAMPING POLES

These Poles are made of straight grained wood and are coupled together with removable wood pins held in place in recessed grooves by a rubber band and can be quickly connected and disconnected.

Couplers and Head Blocks are 4, 5, and 6 inches in diameter. Please specify size when ordering. Poles are 1 1/2 inches in diameter.

Head Blocks	4" Dia.	\$3.70 Ea.
Couplers	4" Dia.	3.90 Ea.
Poles 12 ft. long	1 1/2" Dia.	3.60 Ea.
Poles 14 ft. long	1 1/2" Dia.	4.20 Ea.
Poles 16 ft. long	1 1/2" Dia.	4.80 Ea.
Poles 18 ft. long	1 1/2" Dia.	6.30 Ea.
Poles 20 ft. long	1 1/2" Dia.	7.00 Ea.
Poles 22 ft. long	1 1/2" Dia.	8.80 Ea.
Poles 24 ft. long	1 1/2" Dia.	9.60 Ea.



**EXPLOSIVE BOXES:** Made entirely of wood having no metal parts; tongue grooved and dovetailed construction with automatic lock using a rubber band for a spring, treated with paraffin to make moisture resistant. "Approved by the Pennsylvania Department of Mines." Sizes as listed based on 1 1/4" x 8" sticks.

### Powder Box Prices are as follows:

No. 9 Powder Box	\$2.55 Ea.	No. 25 Powder Box	\$5.10 Ea.
No. 12 Powder Box	2.95 Ea.	No. 36 Powder Box	6.50 Ea.
No. 16 Powder Box	3.45 Ea.	No. 60 Powder Box	7.80 Ea.
No. 20 Powder Box	3.90 Ea.	No. 72 Powder Box	8.70 Ea.

### Detonator Box Prices are as follows:

No. 6 size 2 1/2" x 3" x 6" inside	\$2.15 Ea.	No. 8 size 2" x 2 1/2" x 8" inside	\$3.15 Ea.
------------------------------------	------------	------------------------------------	------------

**J. V. Hammond Company** **Spangler, Pennsylvania**

## LEWIS The Selenium Rectifier

Distributors  
S. E. GANE & CO. 508 Grant St. Pittsburgh, Pa.

"WE LOOK INTO THE EARTH"



### CORE DRILLING

- Coal Property Testing
- Pre-Grouting Mine Shafts
- Mine Drainage Bore Holes
- Large Diameter Holes for Ventilation & Escapeways

PENNSYLVANIA DRILLING CO.  
PITTSBURGH 20, PA.

## INCREASE YOUR PRODUCTION

with  
DALY'S IMPROVED COMBINATION MINE CHECK  
The Only Satisfactory Check on the Market Today

**DALY TICKET CO., Collinsville, Ill.**

Let Us  
Solve  
your  
DRILLING  
PROBLEMS!

### DIAMOND CORE DRILLING

BITUMINOUS COAL LANDS  
TESTED... SATISFACTORY  
CORES GUARANTEED  
**HOFFMAN BROS. DRILLING CO.**  
Punxsutawney, Pa. Call 382

### SHOVELS

15-W Bucyrus-Monaghan Dragline, 215' boom, 13 yd. bucket, or 15 yds. on 180'. Excellent condition.

625 Page Diesel Walking Dragline, 150' boom, 9 yd. bucket, 5 cyl., 12 1/2 x 16 and 3 cyl., 11 x 15 Page diesel engine. Excellent condition — available immediately.

621 Page Single Engine Machine, with 135' boom, 5 yard bucket and 3 cyl., 12 1/2 x 16 engine. Very good mechanical condition.

2400 Lima Dragline, with 110' boom, 6 yd. bucket, Hamilton diesel engine. Will guarantee.

1291 Lima Dragline, Serial 323788, with 85' boom, 3 yd. Page bucket, Kohler light plant, 18" 11" x 44" crawlers, 1949 machine, completely overhauled. Will guarantee. BARGAIN.

### DRAGLINES

618 Page Walking Dragline, with 125' boom, 5 yd. bucket, 4 cyl., 11 x 15 Page diesel engine. Recent machine. Like new.

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892 Lima Dragline, with 75' boom, 2 yd. bucket, 18" 11" x 44" crawlers, 19-17000 Cat. diesel engine and Kohler light plant. Machine only worked about 4000 hours. Very fine condition.

34 Lima Paymaster, with 18' boom, 15' dipper handle, 1 yd. dipper, 11' crawlers, 30" trends and 3 cyl., G. M. diesel engine. Very fine condition.

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- Motors 220/440 v. or 2200 v.—3 hp., 60 cy.

No.	KW	Make	RPM
1	200	Westinghouse	1200
1	200	Westinghouse	720
2	200	Westinghouse	1200
1	100	Westinghouse	720
1	100	General Electric	900
1	100	Westinghouse	600
1	100	General Electric	1800
1	100	Reliance	580
1	100	Delco	1200
2	90	Westinghouse	680
4	75	Westinghouse	720
1	75	Westinghouse	1200
1	60	Westinghouse	1200
1	50	General Electric	1800
3	40	Westinghouse	900
2	30	Westinghouse	720

### 125 V. DC M.G. Sets

- 1—100 kw. G.E. 125 v. 900 rpm. 220/440 v.  
3 ph. 60 cy. AC Sys.  
1—125 kw. G.E. 125 v. 1200 rpm. 220/440 v.  
3 ph. 60 cy. AC.  
1—75 kw. West. 125 v. 1200 rpm. 220/440 v.  
3 ph. 60 cy.

No.	D.C. Generators—250 v. D.C.	Speed
1	250 KW. West.	1200
1	175 G.E.	700
1	135 G.E.	1180
1	125 West.	860
1	125 Allis-Chal.	1150
1	110 West.	700
1	100 Allis-Chal.	1150
1	75 West.	750
1	40 G.E.	720

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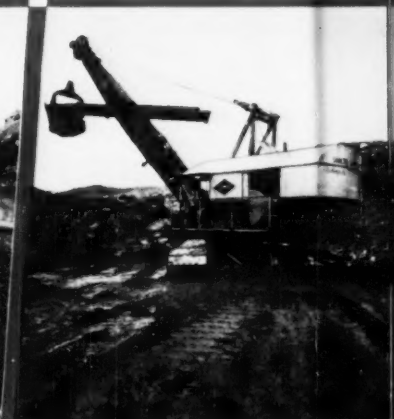
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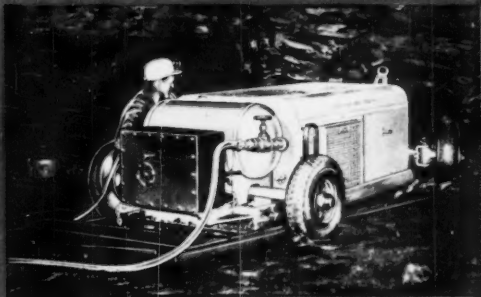
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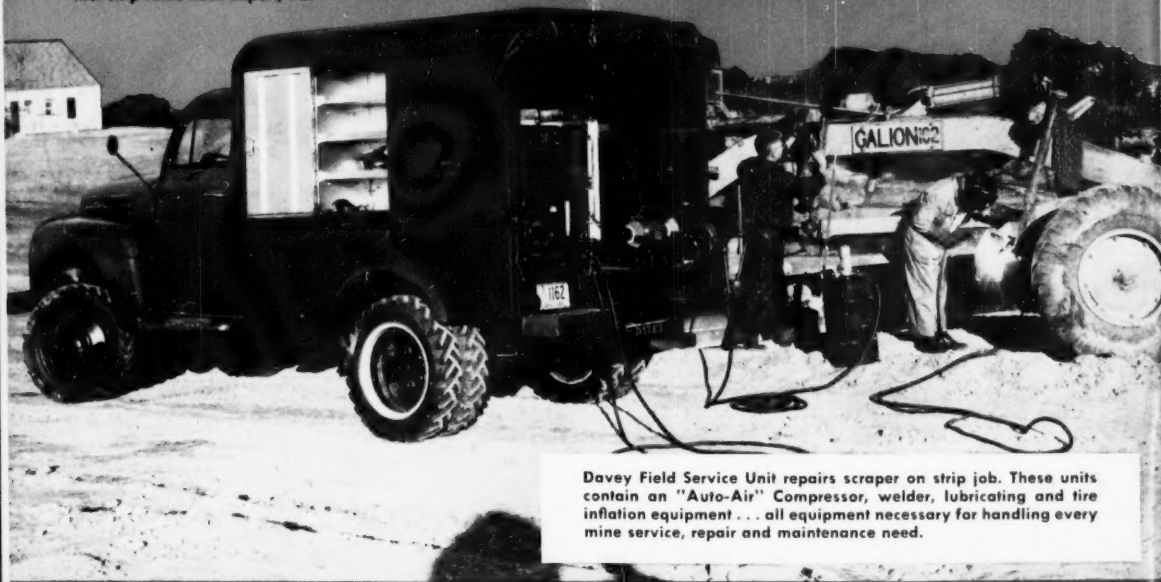
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